IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY Plaintiff, v. ACUSHNET COMPANY, Defendant.	C.A. No. 06-91 (SLR) **JURY TRIAL DEMANDED** **PUBLIC VERSION**

APPENDIX IN SUPPORT OF ACUSHNET'S MEMORANDUM OF LAW IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT OF INVALIDITY OF U.S. PATENT NOS. 6,210,293; 6,506,130; 6,503,156; AND 6,595,873

VOLUME 3 OF 4

EXHIBITS 25 TO 44

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Dated: August 7, 2007
Public Version Dated: August 14, 2007

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on August 14, 2007, the attached document was electronically filed with the Clerk of the Court using CM/ECF which will send notification to the registered attorney(s) of record that the document has been filed and is available for viewing and downloading.

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721869 / 30030

EXHIBIT 25

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 27

Designation: D 2240 – 97

Standard Test Method for Rubber Property—Durometer Hardness[1]

This standard is issued under the fixed designation D 2240; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers seven types of durometers A, B, C, D, DO, O and OO, and the procedure for determining indentation hardness of substances classified as rubber, cellular materials, elastomeric materials, thermoplastic elastomers and some hard plastics.

1.2 This test method is not applicable to the testing of fabrics.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 618 Practice for Conditioning Plastics for Testing[2]

D 785 Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials[2]

D 1349 Practice for Rubber—Standard Temperatures For Testing[3]

D 4483 Practice for Determining Precision for Test Method Standards in the Rubber and Carbon Black Industries[3]

3. Summary of Test Method

3.1 This test method permits hardness measurements based on either initial indentation or indentation after a specified period of time, or both.

NOTE 1—Durometers with maximum reading pointers used to determine initial hardness values may yield lower hardness when the maximum pointer is used.

4. Significance and Use

4.1 This test method is based on the penetration of a specific type of indentor when forced into the material under specified conditions. The indentation hardness is inversely related to the penetration and is dependent on the elastic modulus and viscoelastic behavior of the material. The shape of the indentor and the applied force influence the results obtained so there may be no simple relationship between the results obtained with one type of durometer and those obtained with another type of durometer or other instruments for measuring hardness. This test method is an empirical test intended primarily for control purposes. No simple relationship is known to exist between indentation hardness determined by this test method and any fundamental property of the material tested. For specification purposes it is recommended that Test Method D 785 be used for hard material.

NOTE 2—Durometer scale comparison chart only. This is not and cannot be used as a conversion reference.

Type A			10	20	30	40	50	60	70	80	90	100									
Type B				10	20	30	40	50	60	70	80	90	100								
Type C					10		20	30		40		50	60	70	80	90	100				
Type D							10			20			30	40	50	60	60	70	80	90	100
Type DO						10		20		30		40		50		60		70		80		90		100
Type O					10	20	30	40	50	60	70	80	90	100							
Type OO	10	20	30	40	50	60	70	80			90				100						

5. Apparatus

5.1 Hardness measuring apparatus or durometer consisting of the following components:

5.1.1 *Presser Foot*, with a hole having a diameter as specified in Fig. 1(*a*), 1(*b*), or 1(*c*) with its center at least 6 mm (0.25 in.) from any edge of the foot.

5.1.2 *Indentor*, formed from hardened steel rod and shaped in accordance with Fig. 1(*a*), 1(*b*), or 1(*c*) with full extension adjustable between 2.46 to 2.54 mm (0.97 to 0.100 in.).

5.1.3 *Indentor Extension Indicating Device* (analog or electronic), having a scale reading from 0 to 100 with equal divisions throughout the range. The scale reading is an inverse function of the indentor extension. The device shall have a pointer that moves on the scale at a rate of one hardness point for each 0.025 mm (0.001 in.) of indentor movement.

NOTE 3—Type A Shore Durometers serial numbers 1 through 16 300 and 16 351 through 16 900 and Type A-2 Shore Durometers numbers 1 through 8077 do not meet the requirement of 2.46 to 2.54 mm (0.097 to 0.100 in.) extension of the indentor at zero reading. These durometers will give readings which are low by amounts ranging from 3 units at 30 hardness to 1 unit at 90 hardness.

5.1.4 *Timing Device* (optional), capable of being set to a desired elapsed time, signalling the operator or holding the hardness reading when the desired elapsed time has been reached. The timer should be automatically activated when the presser foot is in firm contact with the specimen being tested.

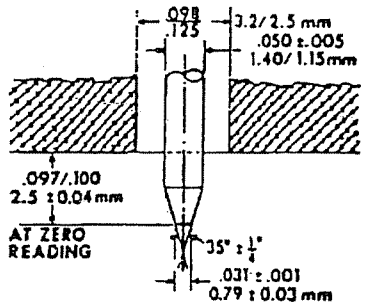
5.1.5 *Calibrated Spring*, for applying force to the indentor in accordance with Fig. 1.

[1] This test method is under the jurisdiction of ASTM Committee D-11 on Rubber and is the direct responsibility of Subcommittee D11.10 on Physical Testing.

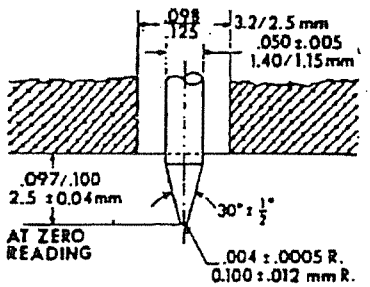
Current edition approved Feb. 10, 1997. Published March 1997. Originally published as D 2240 – 64 T. Last previous edition D 2240 – 95.

[2] *Annual Book of ASTM Standards*, Vol 08.01.

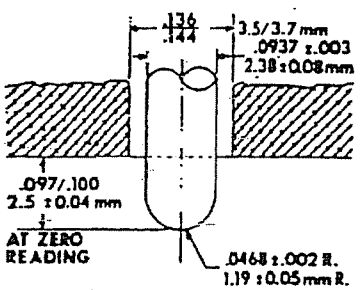
[3] *Annual Book of ASTM Standards*, Vol 09.01.



(a) Indentor for Type A and C Durometers



(b) Indentor for Type B and D Durometers



(c) Indentor for Type DO, O, and OO Durometers

NOTE—Spring Force Combinations:

Force, N = 0.550 + 0.075 H_x

where H_x = hardness reading on Type A, B and O durometers.

Force, N = 0.4445 H_y

where H_y = hardness reading on Type C, D and DO durometers.

Force, N = 0.203 + 0.00908 H_{oo}

where H_{oo} = hardness reading on Type OO durometers.

FIG. 1 Durometer, Indentor and Spring Force Combinations

6. Test Specimen

6.1 The test specimen shall be at least 6 mm (0.25 in.) in thickness unless it is known that results equivalent to the 6 mm values are obtained with a thinner specimen (see Note 4). A specimen may be composed of plied pieces to obtain the necessary thickness, but determinations made on such specimens may not agree with those made on solid specimens because the surface faces between plies may not be in complete contact. The lateral dimensions of the specimen shall be sufficient to permit measurements at least 12 mm (0.5 in.) from any edge unless it is known that identical results are obtained when measurements are made at lesser distance from an edge. The surfaces of the specimen shall be flat and parallel over a sufficient area to permit the presser foot to contact the specimen over an area having a radius of at least 6 mm (0.25 in.) from the indentor point. A suitable hardness determination cannot be made on a rounded, uneven, or rough surface.

NOTE 4—The minimum requirement for the thickness of the specimen is dependent on the extent of penetration of the indentor into the specimen; that is, thinner specimens may be used for materials having hardness values at the upper end of the scale. The minimum distance from the edge at which measurements may be made likewise decreases as the hardness increases. For materials having hardness values above 50 Type D durometer, the thickness of the specimen should be at least 3 mm (0.12 in.) and measurements should not be made closer than 6 mm (0.25 in.) to any edge.

7. Calibration

7.1 The durometer spring shall be calibrated by supporting the durometer in a vertical position and applying a measurable force to the indentor tip (see Fig. 2). The device used to apply the force may be a dead weight or electronic load cell device capable of measuring applied force at 50 % of the calibration tolerance. Care should be taken to ensure that the force is applied vertically to the indentor tip, as side loads will cause errors in calibration. Spring calibration shall be verified on all durometer at scale readings of 20, 30, 40, 50, 60, 70, 80 and 90. The measured force (9.8 × mass in kilograms) shall be equivalent to the force calculated by the equation in Fig. 1. The measured force for Type A, B and O durometers shall be within ±0.08 N. For Type C, D and DO durometers it shall be within ±0.44 N, and for Type OO durometers it shall be within ±0.025 N.

NOTE 5—Instruments specifically designed for the calibration of durometers may be used.[4]

7.2 Indentor extension and shape must be in accordance with 5.1.2. With the durometer placed firmly on a flat surface the indicator should read a number equal to the indentor extension measured in inches × 1000, within ±0.5 durometer points.

NOTE 6—When performing the procedure in 7.2 on Type B and D durometers care should be used not to damage the indentor tip.

7.3 Test blocks (rubber or spring type) provided for checking durometer operation are not to be relied upon as calibration standards. The calibration procedures outlined in 7.1 and 7.2 are the only valid calibration methods.

8. Conditioning

8.1 Tests shall be made at 23 ± 2°C (73.4 ± 3.6°F). For materials whose hardness depends on relative humidity, the specimen shall be conditioned in accordance with Procedure A of Practice D 618 and tested under the same conditions.

NOTE 7—No conclusive evaluation has been made on durometers at temperatures other than 23 ± 2°C (73.4 ± 3.6°F). Conditioning at temperatures other than the above may show changes in calibration. Durometer use at temperatures other than the above should be decided locally (see Practice D 1349).

9. Procedure

9.1 Place the specimen on a hard, horizontal surface.

[4] Zwick and Co., Control Equipment 7501 with serial numbers higher than WA 20301 or the Shore Durocalibrator, available from Shore Instrument Manufacturing Co., 80 Commercial St., Freeport, NY 11520, have been found satisfactory for this purpose.

Hold the durometer in a vertical position with the point of the indentor at least 12 mm (0.5 in.) from any edge of the specimen, unless it is known that identical results are obtained when measurements are made with the indentor at a lesser distance. Apply the presser foot to the specimen as rapidly as possible, without shock, keeping the foot parallel to the surface of the specimen. Apply just sufficient pressure to obtain firm contact between presser foot and specimen.

NOTE 8—Better repeatability may be obtained by using a mass centered on the axis of the indentor. Recommended masses are 1 kg for Type A, B and O durometers, 5 kg for Type C, D and DO durometers, and 400 g for Type OO durometers. Durometer stands using the masses above as a constant load and a controlled descent speed, without shock, produce maximum repeatability.

9.2 For any material covered in 1.1, after the presser foot is in firm contact with the specimen, the scale reading is to be taken within 1 s or after any period of time agreed upon between supplier and user unless the durometer has a maximum indicator, in which case the maximum reading is taken. The hardness reading may progressively decrease with time delay.

9.3 Make one measurement at each of three or five different points distributed over the specimen at least 6 mm (0.25 in.) apart using the median of these measurements for the hardness value.

NOTE 9—The type of durometer should be selected with the knowledge that readings below 10 or above 90 are not considered reliable by the manufacturer. It is suggested that readings in these ranges not be recorded.

10. Report

10.1 Report the following information:

10.1.1 Hardness value obtained,

10.1.2 Complete identification of the material tested,

10.1.3 Vulcanization date,

10.1.4 Description of specimen, including thickness and number of pieces plied, if less than 6 mm (0.25 in.),

10.1.5 Temperature of test if other than 23°C,

10.1.6 Relative humidity when hardness of material is dependent on humidity,

10.1.7 Type and serial number of durometer,

10.1.8 Indentation hardness time interval at which reading was taken, and

10.1.9 Date of test.

NOTE 10—Readings may be reported in the form: A/45/15 where A is the type of durometer, 45 the reading, and 15 the time in seconds that the pressure foot is in firm contact with the specimen. Similarly, D/60/1 indicates a reading of 60 on the Type D durometer obtained either within 1 s or from a maximum indicator.

11. Precision and Bias[5]

11.1 These precision and bias statements have been prepared in accordance with Practice D 4483. Refer to this Practice for terminology and other testing and statistical concepts.

11.2 The Type 1 precision for both Type A and D methods was determined from an interlaboratory program with three materials of varying hardness, with six participating laboratories. Tests were conducted on two separate days in each laboratory for both A and D testing programs. All materials were supplied from a single source.

11.3 A test result for hardness (both A and D) was the median of five individual hardness readings on each day in each laboratory.

11.4 Table 1 shows the precision results for Type A method. Table 2 gives the precision results for Type D method.

11.5 The precision results in this precision and bias section give an estimate of the precision of this test method with the materials (rubbers) used in the particular interlaboratory program as described above. The precision parameters should not be used for acceptance or rejection testing, or both, of any group of materials without documentation that they are applicable to those particular materials and the specific testing protocols that include this test method.

11.6 *Precision*—The precision of this test method may be expressed in the format of the following statements which use as appropriate value r, R, (r) or (R), that is, that value to be used in decisions about test results (obtained with the test method). The appropriate value is that value of r or R associated with a mean level in Tables 1 and 2 closest to the mean level under consideration (at any given time, for any given material) in routine testing operations.

11.6.1 *Repeatability*—The repeatability, r, of this test method has been established as the appropriate value tabulated in Tables 1 and 2. Two single test results, obtained under normal test method procedures, that differ by more than this tabulated r (for any given level) must be considered as derived from different or nonidentical sample populations.

11.6.2 *Reproducibility*—The reproducibility, R, of this test method has been established as the appropriate value tabulated in Tables 1 and 2. Two single test results obtained

TABLE 1 Type 1 Precision—Type A Durometer Method

Material	Average Level	Within Laboratories			Between Laboratories		
		Sr[A]	r[B]	(r)[C]	SR[D]	R[E]	(R)[F]
1	51.4	0.646	1.83	3.56	1.56	4.41	8.59
2	65.3	0.878	2.48	3.81	2.14	6.06	9.27
3	68.0	0.433	1.23	1.80	2.28	6.45	9.49
Pooled	61.6	0.677	1.92	3.11	2.018	5.72	9.28

[A] Sr = repeatability standard deviation, measurement units.
[B] r = repeatability = 2.83 × Sr, measurement units.
[C] (r) = repeatability, relative, (that is, in percent).
[D] SR = reproducibility standard deviation, measurement units.
[E] R = reproducibility = 2.83 × SR, measurement units.
[F] (R) = reproducibility, relative, (that is, in percent).

TABLE 2 Type 1 Precision—Type D Durometer Method

Material	Average Level	Within Laboratories			Between Laboratories		
		Sr[A]	r[B]	(r)[C]	SR[D]	R[E]	(R)[F]
1	42.6	0.316	0.894	2.10	2.82	7.98	18.7
2	54.5	0.791	2.24	4.11	3.54	10.0	18.4
3	82.3	1.01	2.86	3.47	3.54	10.0	12.2
Pooled	59.8	0.762	2.16	3.61	3.32	9.40	15.7

[A] Sr = repeatability standard deviation, measurement units.
[B] r = repeatability = 2.83 × Sr, measurement units.
[C] (r) = repeatability, relative, (that is, in percent).
[D] SR = reproducibility standard deviation, measurement units.
[E] R = reproducibility = 2.83 × SR, measurement units.
[F] (R) = reproducibility, relative, (that is, in percent).

[5] Supporting data are available from ASTM Headquarters. Request RR:D11-1029.

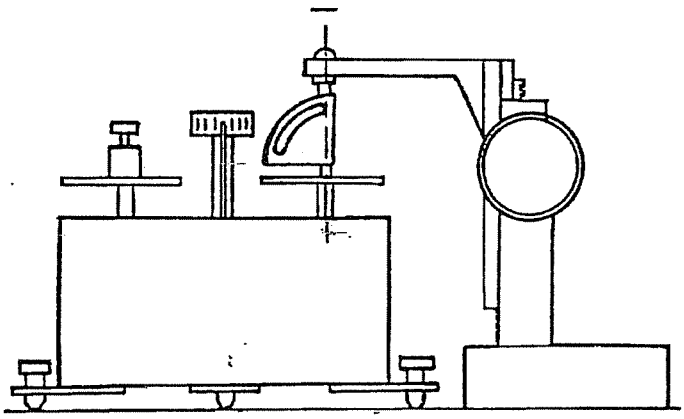


FIG. 2 Apparatus for Calibration of Durometer Spring

in two different laboratories, under normal test method procedures, that differ by more than the tabulated R (for any given level) must be considered to have come from different or nonidentical sample populations.

11.6.3 Repeatability and reproducibility expressed as a percentage of the mean level, (r) and (R), have equivalent application statements as above for r and R. For the (r) and (R) statements, the difference in the two single test results is expressed as a percentage of the arithmetic mean of the two test results.

11.7 *Bias*—In test method terminology, bias is the difference between an average test value and the reference (or true) test property value. Reference values do not exist for this test method since the value (of the test property) is exclusively defined by this test method. Bias, therefore, cannot be determined.

12. Keywords

12.1 durometer hardness

EXHIBIT 28

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Sullivan	)	
Reexamination Proceeding	)	
Control No.: 95/000,120	)	Examiner: Michael W. O'Neill
Filed: January 17, 2006	)	Art Unit: 3993
For: U.S. Patent No. 6,210,293	)	

Central Reexamination Unit
571-273-9900

RESPONSE TO OFFICE ACTION MAILED FEBRUARY 27, 2007

Claims 1-8 of U.S. Patent No. 6,210,293 ("the '293 patent") stand rejected under 35 U.S.C. § 103 on a number of grounds. In this Response, the Patent Owner, Callaway Golf Company ("Callaway Golf"), will demonstrate why the claimed subject matter would not have been obvious based upon the cited prior art references. We first will place the claimed invention in context by describing how various features of a golf ball, including the materials used in its construction, influence golf ball performance. An understanding of the features that influence golf ball performance is critical in this case because it belies the fundamental belief upon which the current rejections are based, i.e. that various materials may be easily substituted for one another with predictable results. This simply is not the case. We will also include a brief history of golf ball development and innovation that will demonstrate how the claimed golf balls represented a revolutionary improvement in golf ball performance—truly a paradigm shift that established a new standard for ensuing golf ball designs. Against this backdrop, we will turn to the individual rejections and demonstrate why each is contrary to both fact and the law governing obviousness, thereby requiring withdrawal of the rejections and issuance of a certificate confirming patentability.

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April 27, 2007
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> a character which may be employed for one or both layers 14 and 16 for the golf ball of this invention.[41]

In other words, Nesbitt is saying to use ionomers, preferably foamable ionomers, and that Molitor '637 discloses specific examples of suitable foamable ionomer resins. It is true that Molitor '637 also discloses examples of non-ionomeric resins, including polyurethanes, for use as the sole cover layer of a golf ball. However, Nesbitt's citing of Molitor '637 for examples of ionomer resins is tantamount to teaching away from using any of Molitor 637's non-ionomeric resins, including polyurethanes, for use as the cover layer of a 2-layer cover.[42] Mr. Nesbitt himself agrees. During his deposition, he testified:

> Q. In your 193 patent Mr. Rosenthal earlier referenced you a paragraph that talked about the Molitor patent. Do you remember that?
>
> A. I remember that.
>
> Q. If somebody read that to themselves and said to you, "Oh, you must have been referring to polyurethane as a potential outer cover material," what would you say to that?
>
> A. No way.[43]

It is improper, as a matter of law, to ignore what Nesbitt teaches with respect to suitable resins and proceed to make the proposed combination anyway. This sort of hindsight analysis cannot support obviousness.[44]

---

[41] Nesbitt, col. 3, ll. 34-44 and 51-61.

[42] *See Tec-Air, Inc. v. Denso Mfg., Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999) (quoting *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)) ("'A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant ... [or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.'").

[43] Nesbitt Deposition, p. 235, ll. 13-21 (Exhibit E).

[44] *See Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 448 (Fed. Cir. 1986), quoting *In re Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965):

> It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.

combine a polyurethane layer with the hard, inner ionomer layer overlying the golf ball core that the '293 claims specify.

For at least these reasons, claims 1, 2, 4, 5, 7 and 8, therefore, would not have been obvious over Proudfit in combination with Molitor '751, and the rejections should be withdrawn.

CONCLUSION

For the foregoing reasons, claims 1-8 of the '293 patent are patentable over the cited references. Accordingly, Patent Owner, Callaway Golf, requests prompt issuance of a Certificate of Reexamination confirming the validity of claims 1-8.

The Director is authorized to charge any fees or credit any overpayments to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 4/27/07

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60421058.doc

EXHIBIT 29

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
09/776,278	02/02/2001	Michael J. Sullivan	P-3724-2-F1-C1-C1

CONFIRMATION NO. 1289

OC000000018350460

24492
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Date Mailed: 03/23/2006

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/22/2006.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

M. A. Twitty

MARSHA A TWITTY
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EXHIBIT 30

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 31

(12) UK Patent Application (19) GB (11) 2 248 067 (13) A

(43) Date of A publication 25.03.1992

(21) Application No 9117871.5

(22) Date of filing 19.08.1991

(30) Priority data
(31) 9010696 (32) 22.08.1990 (33) FR

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(51) INT CL[5]
A63B 37/06

(52) UK CL (Edition K)
C3V VEM
A6D D1A D1C3
C3W W111 W113 W202 W213 W310A W321
W324A

(56) Documents cited
GB 2086235 B

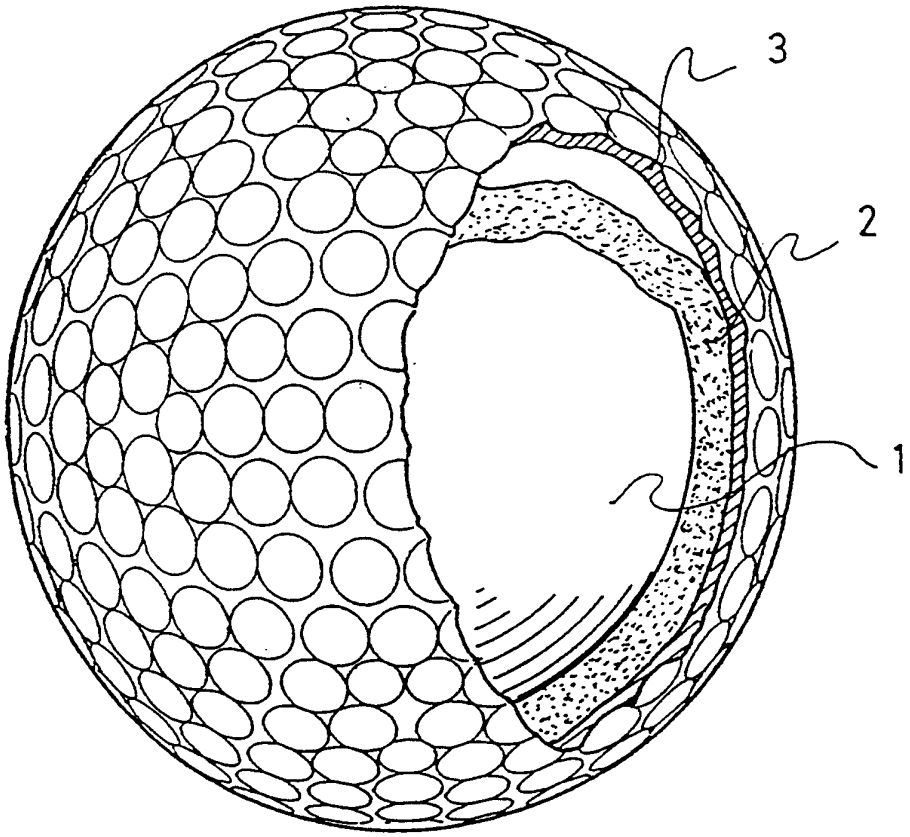
(58) Field of search
UK CL (Edition K) A6D D1A D1B D1C1, C3V VEM
INT CL[5] A63B
W.P.I. ; CLAIMS

(54) Golf balls of three piece structure

(57) A golf ball comprises a three part structure, namely an elastomeric core, an intermediate layer, and a thermoplastic outer envelope. The intermediate layer is made of a thermoplastic material containing at least 10% and preferably at least 35% by weight of a block copolyether.

GB 2 248 067 A

FIGURE DE L'ABREGE



GOLF BALL

This invention relates to golf balls and, more particularly, to golf balls having a three piece structure.

The prior art makes a distinction between two main types of golf ball. One of these is the solid so-called "two-piece" ball. Its properties result from the combination of a one-piece rubber spherical core and a hard thermoplastics envelope of ionomer resin. The main advantage of these balls is that they give very high performance in long drives because of their high starting speed. On the other hand they feel hard when hit, the essential cause of which is their significant rigidity. In short shots or approach shots, their high initial speed and the low contact area with the striking face reduces control of the ball and the lack of rotational speed has an adverse effect on the behaviour of the ball as it drops.

The other main type of golf ball is the so-called "three-piece" ball. These comprise a central solid or liquid core, a winding of rubber threads forming an intermediate layer, and a thermoplastics outer envelope, one or two millimeters thick, of ionomer resin or balata rubber. The greater deformability of the outer layers of this structure causes a feeling of softness on impact, due to the greater level of

compression, and there is also a larger contact area. Conversely this type of ball has a poorer performance in long shots, the opposite of "two piece" balls.

An object of this invention is to provide a golf ball having a structure such that its performance is satisfactory in all parts of the game, namely: an initially high speed, close to that of two piece balls, good feel and good control in the approach game, and also reproducibility of strike and excellent durability.

According to the present invention there is provided a golf ball which comprises a core of elastomeric material, an intermediate layer, and an outer envelope of thermoplastic material, in which the intermediate layer is made of a composition containing at least 10% by weight of a block copolyether, based on the total weight of the composition.

The intermediate layer preferably comprises at least 35% by weight of the block copolyether.

The block copolyethers used in the intermediate layer according to the invention are a known class of block copolymers comprising polyether blocks of a certain chain length and blocks derived from the other monomer or monomers. In the block copolymers used according to the present invention, the polyether blocks are flexible and the other blocks should be rigid. By varying the nature and proportions of these components a fairly wide range of products can be obtained, from the very flexible to the relatively rigid.

Of these copolymers, those which are particularly preferred are amide block copolyethers and ester block copolyethers. Suitable amide block copolymers (PEBA) are, for example, those available under the trade mark "Pebax" from Atochem; under the

trade mark "Grilamid" from EMS; and under the trade mark "Vestamid" from Huls.

Preferred ester block polyethers (PEBE) are those in which the ester blocks are derived from butylene terephthalate (PBT). Suitable block copolymers of this kind are, for example, those available under the trade mark "Hytrel" from du Pont and under the trade mark "Arnitel" from Akzo.

The intermediate layer may be formed wholly of the block copolyether. The resulting balls are valued for their excellent touch and their high initial speed. Conversely, because of a low elastic modulus they have a tendency to deform excessively on impact.

This problem is advantageously solved by using a mixture of the ether block copolymer and one or more ionomers. The proportion of ionomer(s) may be up to 90% by weight of the composition and is preferably from 20 to 65% by weight. Preferred ionomers are those having a Shore D hardness of from 55 to 65 and a bending modulus of from 250 to 350 N/mm2. In this case, the block copolymer is preferably an amide block polyether and is present in a proportion of from 35 to 80%; the amide block polyether is preferably one having a Shore D hardness of from 30 to 40.

For the better understanding of the invention, preferred embodiments thereof will now be described, by way of example, with reference to the accompanying drawing, in which the single figure is an elevation of a golf ball according to the invention, in partial cross-section.

Referring to the figure, the golf ball comprises a core 1 formed of a thermoplastic, thermo-hardened or vulcanisable elastomer and having a diameter of from 34 to 38 millimetres. Its density is from 1 to 1.3 g/cm3 and its Shore D hardness is from 40 to 50.

The compression of the core under a load of 150 kg is from approximately 2.8 to 4.5 mm for a fixed diameter of 36 mm.

Preferred elastomers for the core are cross-linked diene elastomers of the cis-1,4-polybutadiene type containing a reaction product based on zinc oxide and zinc diacrylate. The core composition also contains a cross-linking agent, for example dicumyl peroxide.

The intermediate layer 2 is an injectable and extrudable thermoplastic amide block polyether copolymer and, preferably, a polyetheresteramide of the kind described in French Patent 2,273,021.

By way of example, balls have been made with an intermediate layer of "Pebax" alone. Their characteristics and properties are shown in Table I and II below.

In a preferred embodiment, the intermediate layer 2 is formed of a mixture of amide block polyether and ionomer(s). Tables 3 and 4 show the characteristics and properties of balls having intermediate layers formed of mixtures of "Pebax" 3533 and "Escor".

In general, the layer 2 has a thickness of approximately 1 to 3 mm and an elastic modulus of from 15 to 255 N/mm2. Depending on the type of copolymer used, the Shore D hardness may vary from 25 to 50. The effect of these parameters is important and governs the performance characteristics of the ball. Balls having an intermediate layer with a low Shore D hardness of about 30 to 37 (low bending modulus) are valued for their touch and their control because of their high rotational speed or spin. Conversely, balls in which the Shore D hardness of the intermediate layer is from 40 to 50 (bending modulus also higher) are valued for

their optimum initial speed and their durability.

If Tables I and III are compared, it will be noted that the hardness values do not change if an ionomer is added to the ether block copolymer. Conversely, the modulus of elasticity under tension increases considerably. This effect is particularly useful because the intermediate layer contributes to the mechanical strength of the core on impact and advantageously restricts its deformation. The intermediate layer behaves dynamically like the wound elastic filament layer of so-called "wound" balls.

The assembly of the two parts 1 and 2 forming the internal structure of the ball has a compression under 150 kg of 2.5 to 4 mm for a total diameter of 40 mm.

Outer layer 3 forms the envelope for the ball. It is made of a thermoplastics material and has a thickness of from 0.9 to 3 mm.

The choice of materials is relatively wide in so far as the essential qualities required of the envelope are its impact resistance and durability. To obtain these characteristics, it is generally required that the hardness of the envelope should be greater than the hardness of the intermediate layer.

Suitable Shore D hardnesses for the envelope are, for example, from 40 to 55 and preferably from 43 to 48; the density of the envelope is preferably from 0.8 to 1.2 g/cm3 and the bending modulus is preferably from 30 to 280 N/mm3.

Preferred envelope materials are "Surlyn" ionomers available from du Pont and "Iotek" ionomers available from Exxon; amide block copolymers of the same type as those used for the intermediate layer, but of greater hardness; mixtures of ionomers and amide block copolymers; thermoplastic polyurethanes; and

mixtures of two or more of these materials.

The combination of the three components 1, 2 and 3 gives rise to a finished ball having a diameter of from 42.7 to 42.8 mm. Its compression under a load of 150 kg is from 2.5 to 4 mm.

By way of example, the physical and behavioural characteristics and properties of several balls according to this invention have been compared with balls according to the prior art in common commercial use. The results are shown in Tables I to IV below:

TABLE I

COMPOSITION	INVENTION				PRIOR ART		
	Ball 01	Ball 02	Ball 03	Ball 04	2-Piece Ball	3- Piece Ball A	3- Piece Ball B
	CIS-1,4-POLYBUTADINE ELASTOMER CORE						
Diameter (mm)	36.4	36.4	36.4	36.4	SOLID RUBBER CORE	WOUND CORE	WOUND CORE
Density (g/cm3)	1.18	1.18	1.18	1.18			
Compression in mm under a constant load of 150 Kg	3.8	3.8	3.8	3.8			
COMPOSITION	AMIDE BLOCK COPOLYETHER (PEBAX) INTERMEDIATE LAYER						
Hardness (Shore D)	37	37	40	43			
Thickness (mm)	1.8	1.8	1.8	1.8			
Density (g/cm3)	1.01	1.01	1.01	1.01			
Elastic Modulus (N/mm2) under tension	40	40	55	80			
COMPOSITION	THERMOPLASTIC ENVELOPE				SURLYN ENVELOPE	SURLYN ENVELOPE	BALATA ENVELOPE
Hardness (Shore D)	43	45	45	47			
Thickness (mm)	1.35	1.35	1.35	1.35			
Density (g/cm3)	1	1	1	1			
Elastic modulus (N/mm2) under tension	80	100	100	120			

TABLE II

	INVENTION				PRIOR ART		
	Ball 01	Ball 02	Ball 03	Ball 04	2-Piece Ball	3-Piece Ball A	3-Piece Ball B
Diameter (mm)	42.7	42.7	42.7	42.7	42.7	42.7	42.7
Weight (g)	45.4	45.4	45.5	45.4	45.5	45.4	45.3
Compression (mm)	3.7	3.6	3.4	3.1	2.8	3.3	3.2
DRIVER							
Initial Speed (m/s)	64.2	64.1	64.2	64.4	64.7	64.3	64.2
Spin (rpm)	3800	3650	3600	3300	2900	3300	3700
5 IRON							
Spin (rpm)	7500	7300	7300	6800	5600	6500	7300
PROPERTIES							
Control	G	G	E	E	M	G	E
Feel	G	G	E	G	M	G	E
Durability	G	G	G	G	E	G	M
Reproducability	E	E	E	E	G	M	M

E=Excellent G=Good M=Mediocre

TABLE III

	Ball 05	Ball 06	Ball 07
COMPOSITION	CIS-1,4-POLYBUTADIENE ELASTOMER CORE		
Diameter (mm)	36.4	36.4	36.4
Density (g/cm3)	1.18	1.18	1.18
Compression in mm under 150kg	3.8	3.8	3.8
COMPOSITION	INTERMEDIATE LAYER (PEBA/IONOMER)		
Hardness (Shore D)	37	40	43
Thickness (mm)	1.8	1.8	1.8
Density (g/cm3)	1	1	1
Elastic Modulus (N/mm2) under tension	90	120	150
COMPOSITION	THERMOPLASTIC ENVELOPE		
Hardness (Shore D)	43	45	47
Thickness (mm)	1.35	1.35	1.35
Density (g/cm3)	1	1	1
Elastic Modulus (N/mm2) under tension	90	100	120

TABLE IV

	Ball 05	Ball 06	Ball 07
Diameter (mm)	42.7	42.7	42.7
Weight (g)	45.4	45.4	45.4
DRIVER (46 m/s)			
Initial speed (m/s)	64.2	64.3	64.2
Spin (rpm)	3800	3600	3400
5 IRON			
Spin (rpm)	7500	7300	6900
PROPERTIES:			
Control	E	E	G
Feel	G	E	G
Durability	G	G	G
Reproducability	E	E	E

Claims:

1. A golf ball which comprises a core of elastomeric material, an intermediate layer, and an outer envelope of thermoplastic material, in which the intermediate layer is made of a composition containing at least 10% by weight of a block copolyether, based on the total weight of the composition.

2. A golf ball according to claim 1, in which the intermediate layer composition comprises at least 35% by weight of the block copolyether.

3. A golf ball according to claim 1 or 2, in which the block copolyether is an amide block copolyether.

4. A golf ball according to claim 3, in which the amide block copolyether is a polyetheresteramide.

5. A golf ball according to any of claims 1 to 4, in which the intermediate layer composition consists of a mixture of the block copolyether and at least one ionomer.

6. A golf ball according to claim 5, in which the composition contains up to 90% by weight of one or more ionomers having a Shore D hardness of from 55 to 65 and a bending modulus of from 250 to 350 N/mm^2.

7. A golf ball according to claim 6, in which the composition contains from 20 to 65% by weight of said ionomer(s).

8. A golf ball according to claim 7, in which the intermediate layer composition contains 35 to 80% by weight of an amide block polyether having a Shore D hardness of from 30 to 40.

9. A golf ball according to any of claims 1 to 6,having the following physical and dimensional characteristics:

diameter of core- 34-38 mm
diameter of core + intermediate layer- 37-41 mm
diameter of whole ball-42.7-42.8 mm
thickness of intermediate layer-1-3 mm
thickness of envelope-0.9-3 mm
compression of core having a 36 mm diameter under a load of 150kg-2.8-4.5 mm
compression of core + intermediate layer having a 40 mm diameter under a load of 150 kg-2.5-4.0 mm
compression of whole ball under a load of 150 kg-2.5-4.0 mm
elastic modulus (ASTM) of intermediate layer-15-250 N/mm^2
elastic modulus (ASTM) of envelope-30-280 N/mm^2.

10. A golf ball according to any of claims 1 to 9, in which the core comprises a cross-linked elastomer of the diene type.

11. A golf ball according to claim 10, in which the elastomer is based on cis-1,4-polybutadiene.

12. A golf ball according to any of claims 1 to 11, in which the Shore D hardness of the core is from 40 to 50.

13. A golf ball according to any of claims 1 to 12, in which the hardness of the envelope is greater than that of the intermediate layer.

14. A golf ball according to claim 13, in which the Shore D hardness of the intermediate layer is from 25 to 50.

15. A gold ball according to claim 13 or 14, in which the Shore D hardness of the envelope is from 40 to 55.

16. A golf ball according to claim 15, in which the Shore D hardness of the envelope is from 43 to 48.

17. A gold ball according to any of claims 1 to 16, in which the envelope is made of an ionomer, an amide block copolyether, a mixture of an ionomer and an amide block copolyether, a thermoplastic polyurethane, or a mixture of two or more of these materials.

18. A golf ball substantially as herein described with reference to any of Balls 01-07 of the Examples.

Published 1992 at The Patent Office, Concept House, Cardiff Road, Newport, Gwent NP9 1RH. Further copies may be obtained from Sales Branch, Unit 6, Nine Mile Point, Cwmfelinfach, Cross Keys, Newport, NP1 7HZ. Printed by Multiplex techniques ltd, St Mary Cray, Kent.

EXHIBIT 32

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 33

UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,

Plaintiff,

v. Civil Action No. 06-91 (SLR)

ACUSHNET COMPANY,

Defendant.

VIDEOTAPED DEPOSITION OF SHENSHEN WU

Friday, March 23, 2007

Boston, Massachusetts

Reporter by:
Lisa A. Moreira
RDR/CRR

JOB No. 62717

factors.

Q. Like what?

A. The inside, because you are measuring the golf ball, right? So...

Q. So, in other words, if there's a polyurethane outer cover that's only 30 mils thick, there's some other layer of material directly underneath it?

A. That's my opinion.

Q. And that the hardness of this underlying material will affect the Shore D reading you get from pressing the durometer against the polyurethane cover?

A. That's my opinion, but I don't know by -- how much does it affect it? I don't know.

Q. Is there any way to calculate the effect of the inner cover layer on the Shore D hardness measured by testing the outer layer?

MR. ROSENTHAL: Objection, vague.

A. Could you rephrase that?

*Q. Sure. In other words, if I have a golf ball that's a polyurethane outer cover over a, for example, Surlyn inner cover, and I know that if I've measured the Shore D hardness of that Surlyn inner cover to be, say, 65, do you know or can you predict

what effect that inner cover will have on the Shore D hardness measured from the polyurethane outer cover?

MR. ROSENTHAL: Can you please reread that question back to me.

*(Question read)

MR. ROSENTHAL: Objection, vague. You can answer the question.

A. I cannot predict.

Q. There's no way to predict it, or you just don't know how to do it?

A. I just don't know how to do it, yes, or I never have that experience.

Q. In your experience, is the Shore D -- well, let me phrase the question this way. If I have a particular kind of polyurethane, and I have a button made of that material and a golf ball covered with that material, is the Shore D of that golf ball cover always going to measure higher than the button or will it sometimes be measured lower?

MR. ROSENTHAL: Objection, asked and answered.

A. In my experience, I have seen it higher, but I have not seen it lower.

Q. Okay.

MR. SHUMAN: I'm just -- I think I did ask that question before, I just don't know if I got an answer, so anyway...

Let's mark the first exhibit.

(Exhibit No. 1, U.S. Patent No. 5,334,673, marked for identification)

MR. SHUMAN: It looks like we have enough copies for everyone.

Q. Okay. Ms. Wu, the document that I've had labeled as Exhibit 1 is your '673 patent, correct?

A. Uh-huh.

Q. When was the last time you saw this patent?

A. When I got the subpoena paper and it listed the Wu patent '673.

Q. Okay. Before receiving your subpoena, when was the last time you'd seen a copy of this patent?

A. I cannot recall. Long time ago.

Q. Do you see on the front page, left-hand column, where it says "Filed: December 24, 1991"?

A. Uh-huh.

Q. Do you recall what work or what project you were working on when you developed the invention of this patent?

A. That around this cover become the Professional ball, the Professional cover.

EXHIBIT 34

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 35

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

ALAN M. GRIMALDI
HOWREY LLP
1299 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004

Transmittal of Communication to Third Party Requester *Inter Partes* Reexamination

REEXAMINATION CONTROL NUMBER *95/000,120*.

PATENT NUMBER *6,210,293*.

TECHNOLOGY CENTER *3999*.

ART UNIT *3993*.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

CONTROL NO.	FILING DATE	PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
95/000,120	01/17/06	6,210,293	

DOROTHY P. WHELAN
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P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER
O'NEILL, M.

ART UNIT	PAPER
3993	

DATE MAILED:

02/27/07

INTER PARTES REEXAMINATION COMMUNICATION

BELOW/ATTACHED YOU WILL FIND A COMMUNICATION FROM THE UNITED STATES PATENT AND TRADEMARK OFFICE OFFICIAL(S) IN CHARGE OF THE PRESENT REEXAMINATION PROCEEDING.

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this communication.

OFFICE ACTION IN INTER PARTES REEXAMINATION	Control N . 95/000,120	Patent Under Reexamination 6210293	
	Examiner Michael O'Neill	Art Unit 3993	

-- Th MAILING DATE of this communication appears n th cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on _____
Third Party(ies) on _____

RESPONSE TIMES ARE SET TO EXPIRE AS FOLLOWS:

For Patent Owner's Response:
2 MONTH(S) from the mailing date of this action. 37 CFR 1.945. EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.956.
For Third Party Requester's Comments on the Patent Owner Response:
30 DAYS from the date of service of any patent owner's response. 37 CFR 1.947. NO EXTENSIONS OF TIME ARE PERMITTED. 35 U.S.C. 314(b)(2).

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

This action is not an Action Closing Prosecution under 37 CFR 1.949, nor is it a Right of Appeal Notice under 37 CFR 1.953.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892
2. ☐ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

PART II. SUMMARY OF ACTION:

1a. ☒ Claims 1-8 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled.
3. ☐ Claims _____ are confirmed. [Unamended patent claims]
4. ☐ Claims _____ are patentable. [Amended or new claims]
5. ☒ Claims 1-8 are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable ☐ are not acceptable.
8. ☐ The drawing correction request filed on _____ is: ☐ approved. ☐ disapproved.
9. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has: ☐ been received. ☐ not been received. ☐ been filed in Application/Control No _____.
10. ☐ Other _____

DETAILED ACTION

This first Action on the merits is being mailed after the order granting reexamination.

Reexamination Procedures

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be an Action Closing Prosecution (ACP), will be governed by 37 CFR 1.116(b) and (d), which will be strictly enforced.

Statutory Basis for Grounds of Rejections - 35 USC § 102 and 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Third Party Requester's Grounds of Rejections

Re. Claim 1

Ground #1. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

Ground #2. In the alternative to Ground #1, the requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637, (Molitor '637).

Ground #3. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673, (Wu).

Ground #4. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751, (Molitor '751).

Ground #5. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #6. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #7. The requester submits that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 2

Ground #8. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193.

Ground #9. In the alternative to Ground #8, the requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #10. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #11. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Ground #12. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #13. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #14. The requester submits that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 3

Ground #15. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193.

Ground #16. In the alternative to Ground #15, the requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #17. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #18. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Ground #19. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #20. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #21. The requester submits that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 4

Ground #22. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193.

Ground #23. In the alternative to Ground #22, the requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #24. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #25. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Ground #26. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #27. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #28. The requester submits that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 5

Ground #29. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193.

Ground #30. In the alternative to Ground #29, the requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #31. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #32. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Ground #33. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #34. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #35. The requester submits that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 6

Ground #36. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193.

Ground #37. In the alternative to Ground #36, the requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #38. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #39. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Ground #40. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #41. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #42. The requester submits that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 7

Ground #43. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

Ground #44. In the alternative to Ground #43, the requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637, (Molitor '637).

Ground #45. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673, (Wu).

Ground #46. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751, (Molitor '751).

Ground #47. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #48. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #49. The requester submits that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Re. Claim 8

Ground #50. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

Ground #51. In the alternative to Ground #50, the requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,274,637, (Molitor '637).

Ground #52. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Wu, U.S. Pat. No. 5,334,673, (Wu).

Ground #53. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193, in view of Molitor et al., U.S. Pat. No. 4,674,751, (Molitor '751).

Ground #54. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,274,637.

Ground #55. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Wu, U.S. Pat. No. 5,334,673.

Ground #56. The requester submits that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187, in view of Molitor et al., U.S. Pat. No. 4,674,751.

Summary of Grounds Adopted vel non

For Claim 1:
Adopted: 2-7
Not Adopted: 1

For Claim 2:
Adopted: 9-14
Not Adopted: 8

For Claim 3:
Adopted: 16-18
Not Adopted: 15 and 19-21

For Claim 4:
Adopted: 23-28
Not Adopted: 22

For Claim 5:
Adopted: 30-35
Not Adopted: 29

For Claim 6:
Adopted: 37-39
Not Adopted: 36 and 40-42

For Claim 7:
Adopted: 44-49
Not Adopted: 43

For Claim 8:
Adopted: 51-56
Not Adopted: 50

In sum, Proposed Grounds 2-7, 9-14, 16-18, 23-28, 30-35, 37-39, 44-49 and 51-56 are **Adopted** by the Examiner.

In sum, Proposed Grounds 1, 8, 15, 19-22, 29, 36, 40-43 and 50 are **Not Adopted** by the Examiner.

Summary of the Grounds of Rejections

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt, U.S. Pat. No. 4,431,193 in view of Molitor et al., U.S. Pat. No. 4,274,637.

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt, U.S. Pat. No. 4,431,193 mentioning Molitor et al., U.S. Pat. No. 4,274,637 in view of Wu, U.S. Pat. No. 5,334,673, as evidenced by Exhibit C.

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt, U.S. Pat. No. 4,431,193 mentioning Molitor et al., U.S. Pat. No. 4,274,637 in view of Molitor et al., U.S. Pat. No. 4,674,751.

Claims 1, 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit, U.S. Pat. No. 5,314,187 in view of Molitor et al., U.S. Pat. No. 4,274,637.

Claims 1, 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit, U.S. Pat. No. 5,314,187 in view of Wu, U.S. Pat. No. 5,334,673.

Claims 1, 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit, U.S. Pat. No. 5,314,187 in view of Molitor et al., U.S. Pat. No. 4,674,751.

Proposed Third Party Requester's Rejections

Issue of Inherency

Multiple proposed rejections that the third party requester submits are based on the inherent properties of the materials. In order to prove the inherent properties of these materials the requester has provided "product data sheets" for the following materials: SURLYN (Exhibit I) and ESTANE (Exhibit J). These "product data sheets" have publication dates later than the critical date of the claimed inventions. Also, the third party requester has provided other Exhibits to prove or evidence inherency, e.g. Exhibit C (description of a golf product performance characteristics); Exhibits G and L (patent owners admissions)

MPEP § 2124 lists exceptions to the rule that the publication date must precede the critical data of the claimed invention: "...facts [that] include the characteristics and properties of a material... ". The Shore D hardness and flexural modulus are characteristics and properties of a material. Thus, it is appropriate to use these "product data sheets" to show such a universal fact as the inherent properties of a known material. Moreover, See also MPEP § 2112.01: "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)." And, "Products of identical chemical composition can not have mutually exclusive properties." "A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)."

Re. Claim 1

Proposed Third Party Requester Rejection: Ground #1.

The requester submits on pages 14-17 that claim 1 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

In the request on pages 14 through 17 the third party requester proposes that claim 1 be rejected based upon Nesbitt alone with the incorporation by reference of Molitor '637. The third party requester points out that Molitor '637 is incorporated by reference into Nesbitt because Nesbitt refers to Molitor '637. (See Nesbitt col. 3, ll. 54-60).

This rejection is not adopted.

MPEP § 608.01(p) states that

> [m]ere reference to another application, patent, or publication is not an incorporation of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. 112, first paragraph. *In re de Seversky*, 474 F.2d 671, 177 USPQ 144 (CCPA 1973). 37 CFR 1.57(b)(1) limits a proper incorporation by reference (except as provided in 37 CFR 1.57(a)) to instances only where the perfecting words "incorporated by reference" or the root of the words "incorporate" (e.g., incorporating, incorporated) and "reference" (e.g., referencing) appear. The requirement for specific root words will bring greater clarity to the record and provide a bright line test as to where something is being referred to is an incorporation by reference. The Office intends to treat references to documents that do not meet this "bright line" test as noncompliant incorporations by reference and may require correction pursuant to 37 CFR 1.57(g). If a reference to a document does not clearly indicate an intended incorporation by reference, examination will proceed as if no incorporation by reference statement has been made and the Office will not expend resources trying to determine if an incorporation by reference was intended. In addition to other requirements for an application, the referencing application must include an identification of the referenced patent, application, or publication. See 37 CFR 1.57(b)(2). Particular attention should be directed to specific portions of the referenced document where the subject matter being incorporated may be found.

Thus, the reference to or the mentioning of another document does not confer an "incorporation by reference" of material especially "essential material" as defined in 37 CFR 1.57(c) which would be needed in this case to supply a basis for a rejection of the subject matter of this claimed invention, i.e. a reference must provide an enabling disclosure for all of the claimed structural features in the claim in order to anticipate the claim..

Proposed Third Party Requester Rejection: Ground #2.

In the alternative, the requester submits on pages 14-17 that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Molitor '637 discloses, teaches or suggests the claim limitations.

Claim 1	Nesbitt (primary) with Molitor '637 (teaching)
A golf ball comprising:	"The disclosure embraces **a golf ball** and method of making the same..." (Nesbitt, Abstract; and FIGS. 1 & 2)
a core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises **a solid center or core** formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere. (Nesbitt, col. 2, ll. 31-34).
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or **inner cover** 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt , col. 2, ll. 34-37).
a Shore D hardness of 60 or	Nesbitt: "[I]nner cover 14 of molded hard, high flexural

more molded on said core,	modulus resinous material such as type 1605 Surlyn® marketed by E.I DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) Per the '293 Patent: "Type 1605 Surlyn® (now designated Surlyn® 8940)." ('293 patent, col. 2, lines 54-55.) Exhibit I: DuPont Surlyn® Product Information: Surlyn® 8940 has a Shore D hardness of 65.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as SURLYN resin type 1605, is preferably of a thickness **in the range of 0.020 inches and 0.070 inches**." (Nesbitt, col. 3, ll. 19-23).
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"Reference is made to the application Ser. No. 155,658 of Robert P. **Molitor** issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers 14 ... for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
an outer cover layer having	"An **outer** layer, ply, lamination or **cover** 16 ... is then remolded onto the inner play or layer 14 ..." (Nesbitt, col. 2, ll. 43-47.)
a Shore D hardness of 64 or less molded on said inner cover layer,	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) See below for Shore D hardness of 64 or less limitation

	explanation.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer comprising a relatively soft polyurethane material.	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873

Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Also, as mentioned above, Molitor '637 teaches in TABLE 10 an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. A review of the scientific literature yields that ESTANE 58133 has an inherent Shore D hardness of 55, see Exhibit J "ESTANE 58133 TPU Product Data Sheet". A Shore D hardness of 55 is within the range claimed of Shore D hardness less than 64. Therefore, Molitor '637's teaching of using ESTANE 58133 inherently meets the claim limitation of providing a outer cover layer of polyurethane material having a Shore hardness of less than 64. Nesbitt discloses its outer layer was made from SURLYN 1855 (now SURLYN 9020). This material had inherently flexural modulus of about 14,000 psi and a Shore hardness of 55, see Exhibit I "Typical Properties for Selected Grades of SURLYN". Moreover, as admitted by the inventor Sullivan of the '873 patent, golf ball designers knew that the mechanical properties of the materials used as a golf-ball cover layer were more critical to golf ball performance than the actual materials themselves, see Exhibit G at 334. Thus, because the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

Also, Molitor '637 teaches in TABLE 10 an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. A review of the scientific literature yields that ESTANE 58133 has an inherent Shore D hardness of 55, see Exhibit J "ESTANE 58133 TPU Product Data Sheet". **A Shore D hardness of 55 is within the range claimed of Shore D hardness less than 64**. Therefore, Molitor '637's teaching of using ESTANE 58133 inherently meets the claim limitation of providing a outer cover layer of polyurethane material having a Shore hardness of less than 64. Moreover, Molitor '637 teaches a list of materials that may adapted for use in the invention:

> Homopolymeric and copolymeric substances, such as (1) vinyl resins formed by the polymerization of vinyl chloride or by the copolymerization of vinyl chloride with unsaturated polymerizable compounds, e.g., vinyl esters; (2) polyolefins such as polyethylene, polypropylene, polybutylene, transpolyisoprene, and the like, including copolymers of polyolefins; (3) polyurethanes such as are prepared from polyols and organic polyisocyanates; (4) polyamides such as polyhexamethylene; (5) polystyrene, high impact polystyrene, styrene acrylonitrile copolymer and ABS, which is acrylonitrile, butadiene styrene copolymer; (6) acrylic resins as exemplified by the copolymers of methylmethacrylate, acrylonitrile, and styrene, etc.; (7) thermoplastic rubbers such as the urethanes, copolymers of ethylene and propylene, and transpolyisoprene, block copolymers of styrene and cispolybutadiene, etc.; and (8) polyphenylene oxide resins, or a blend with high impact polystyrene known by the trade name "Noryl."

See Molitor '637, col. 5, ll. 33-50.

As the request recognizes on page 17:

> Moreover, as recognized by the inventor himself, the particular materials used in the golf balls were not as important as the mechanical properties of those layers. (See Exhibit G at 334.) Furthermore, the relatively soft polyurethane material taught by Molitor '637 and the relatively soft ionomer inner cover layer taught by Nesbitt have similar mechanical properties including an identical Shore D hardness of 55 and a similar, relatively low flexural modulus of 25,000 and 14,000 psi, respectively. (Compare Exhibit I with Exhibit J.) This would have further suggested to those skilled in the art that the soft polymeric materials taught by Molitor, including, for example,

the relatively soft polyurethane material would have been substitutable for the soft ionomer outer cover layer in one example taught by Nesbitt.

In addition, Nesbitt discloses its outer layer was made from SURLYN 1855 (now SURLYN 9020). This material had inherently flexural modulus of about 14,000 psi and a Shore hardness of 55, see Exhibit I "Typical Properties for Selected Grades of SURLYN". Moreover, as admitted by the inventor Sullivan of the '873 patent, golf ball designers knew that the mechanical properties of the materials used as a golf-ball cover layer were more critical to golf ball performance than the actual materials themselves, see Exhibit G at 334.

Thus, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

This rejection of claim 1 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #3.

The requester submits on pages 18-20 of the request that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Wu discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 1	Nesbitt (primary) mentioning Molitor '637 with Wu (teaching)
A golf ball comprising:	"The disclosure embraces **a golf ball** and method of making the same..." (Nesbitt, Abstract; and FIGS. 1 & 2)
a core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises **a solid center or core** formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere. (Nesbitt, col. 2, ll. 31-34).
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or **inner cover** 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt , col. 2, ll. 34-37).
a Shore D hardness of 60 or more molded on said core,	Nesbitt: "[I]nner cover 14 of molded hard, high flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) Per the '293 Patent: "Type 1605 Surlyn® (now designated Surlyn® 8940)." ('293 patent, col. 2, lines 54-55.) Exhibit I: DuPont Surlyn® Product Information: Surlyn® 8940 has a Shore D hardness of 65.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as SURLYN resin type 1605, is preferably of a thickness **in the range of 0.020 inches and 0.070 inches**." (Nesbitt, col. 3, ll. 19-23).

said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"Reference is made to the application Ser. No. 155,658 of Robert P. **Molitor** issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers 14 ... for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
an outer cover layer having	"An **outer** layer, ply, lamination or **cover** 16 ... is then remolded onto the inner play or layer 14 ..." (Nesbitt, col. 2, ll. 43-47.)
a Shore D hardness of 64 or less molded on said inner cover layer,	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) **Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66). **Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, inter alia, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final

	molding step) has been found to be suitable for the present invention. More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38). See also below for Shore D hardness of 64 or less limitation explanation.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer comprising a relatively soft polyurethane material.	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. **Wu**: "[t]he present invention is a golf ball product made from a polyurethane prepolymer cured with a slow-reacting curing agent selected from the group of slow-reacting polyamine curing agents or difunctional glycols. The term "golf ball product" as used in the specification and claims means a cover, a core, a center or a one-piece golf ball. The cover of a golf ball made in accordance with the present invention has been found to have good shear resistance, cut resistance, durability and resiliency. **Preferably, the polyurethane composition of the present invention is used to make the cover of a golf ball.**" (Wu, col. 2, ll. 33-44).

As mentioned above, Nesbitt mentioning Molitor '637 teaches the use of particular polyurethane materials for the use as an outer layer. Wu teaches that polyurethane was being used as the outer layer of golf ball *circa* 1993. Wu further teaches in col. 1:36-46 that SURLYN

covered golf balls lack the "click" and "feel" of balata which golfers have become accustomed to such sensations and polyurethane covered golf balls can be made to have a similar "click" and "feel" of balata. Wu also at least teaches that polyurethanes made according to its invention will have Shore D hardness directly proportional to the degree of cure of the cover; and this Shore D hardness ranges from 10 to 30, preferably 12 to 20 on the Shore D scale, see col. 6:26-38. This teaching of Shore D hardness is directed to an intermediate curing step product prior to the final molding process to finish the golf ball. Exhibit C demonstrates the actual finished golf ball product having the cover layer that Wu teaches within its disclosure. Exhibit C teaches that the golf ball taught therein is covered by the following patents: 4,783,078; 4,846,910; 4,858,923; 4,904,320; 4,915,390; 5,007,594; 5,080,367; 5,133,509; **5,334,673**; and D339,074. The '673 Patent teaches the cover sock of the Exhibit C finished golf ball. Exhibit C teaches that the golf ball taught therein has a cover material made from an "elastomer", having a thickness of .050", and 58 Shore D hardness. All three properties are within the range of mechanical properties of the claim invention (polyurethane is an elastomer, cover layer thickness ranges from 0.010 to 0.070 inches and the Shore D hardness is less that 64). Because it has been admitted by the inventor of the Sullivan '893 patent that the particular chemical properties of the materials (the chemical composition) used in the construction of a golf ball lack criticality as compared to the mechanical properties (the Shore D hardness, flexural modulus, layer thickness) of those compounds used for constructing the different layers (Exhibit G at 334), one of ordinary skill in the art at the time the invention was made would find it obvious to incorporate the teachings of Wu which inherently include the teachings of Shore hardness for the fully cured cover layer as taught in Exhibit C as obvious equivalent materials in order to achieve the same end result of

providing a cover layer that has the same "click" and "feel" of a balata cover which the extra durability of an elastomeric material.

This rejection of claim 1 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #4.

The requester submits on pages 20-21 of the request that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 1	Nesbitt mentioning Molitor '637
A golf ball comprising:	"The disclosure embraces **a golf ball** and method of making the same..." (Nesbitt, Abstract; and FIGS. 1 & 2)
a core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises **a solid center or core** formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere. (Nesbitt, col. 2, ll. 31-34).
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or **inner cover** 14 of molded hard, highly

	flexural modulus resinous material...." (Nesbitt , col. 2, ll. 34-37).
a Shore D hardness of 60 or more molded on said core,	Nesbitt: "[I]nner cover 14 of molded hard, high flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) Per the '293 Patent: "Type 1605 Surlyn® (now designated Surlyn® 8940)." ('293 patent, col. 2, lines 54-55.) Exhibit I: DuPont Surlyn® Product Information: Surlyn® 8940 has a Shore D hardness of 65.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as SURLYN resin type 1605, is preferably of a thickness **in the range of 0.020 inches and 0.070 inches**." (Nesbitt, col. 3, ll. 19-23).
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"Reference is made to the application Ser. No. 155,658 of Robert P. **Molitor** issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers 14 ... for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
an outer cover layer having	"An **outer** layer, ply, lamination or **cover** 16 ... is then remolded onto the inner play or layer 14 ..." (Nesbitt, col. 2, ll. 43-47.)
a Shore D hardness of 64 or less molded on said inner cover layer,	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133.

	ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) See below for Shore D hardness of 64 or less limitation explanation.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer comprising a relatively soft polyurethane material.	Nesbitt: "Reference is made to application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,**637** which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60.) Molitor '637: In examples 16 and 17 teaches an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.

As shown above in the claim chart, Nesbitt mentioning Molitor '673 suggests the use of a soft outer cover layer including a polyurethane material. In an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core **a cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel **cover of the golf ball** of the invention is made of a composition comprising a blend of (1) **a thermoplastic urethane having a shore A hardness less than 95** and (2) **an ionomer having a shore D hardness greater than 55**.

(Molitor '751, col. 2, ll.33-49 (emphasis added)).

Moreover, in explaining what constitutes a two-piece golf ball, Molitor '751 teaches that:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt**, and other balls have non-wound cores.

(Molitor '751, col. 3, ll. 7-12 (emphasis added)).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values with a given range, in this instance Shore C, for given materials, in this instance polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As stated in the request on page 21

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft outer cover layer of Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

This rejection of claim 1 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #5.

The requester submits on pages 22-25 that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 1	Proudfit
A golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** and a cover 12 which comprises a relatively hard

	inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 60 or more molded on said core,	See below with respect to Shore D hardness.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"The **thickness of the inner layer** can be within the range of **about 0.0250 to 0.2875** inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, ll. 37-40) "The preferred dimensions are ... and **inner layer thickness of 0.037 inch...**" (Proudfit, col. 7, ll. 43-44)
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30)
an outer cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12** which comprises a relatively hard inner layer 13 of one or more ionomer resins **and a relatively soft outer layer 14 of polymeric material**." (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 64 or less	"...an **outer layer of soft material** such as balata or a blend of

molded on said inner cover layer,	balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch...." (Proudfit, col. 7, ll. 40-46)
said outer cover layer comprising a relatively soft polyurethane material.	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17)

As shown above Proudfit discloses, teaches and suggests a three-piece golf ball (core, inner layer and outer layer) with the layers within the range of claimed thicknesses each layer made from a material having the mechanical properties substantially similar to the claimed mechanical properties. What Proudfit lacks in clearly disclosing are the particular mechanical and chemical properties of the claimed invention. However, Proudfit either incorporates by reference these mechanical and chemical properties and/or the materials used within the Proudfit golf ball inherently have these mechanical and chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of this invention. (Proudfit, col. 1, ll.39-43). The '981 patent discloses the preferably amount of unsaturated carboxylic acid is "from about 5[%] to about 15% by weight." ('981 Pat, col. 3, ll. 59-60). If Proudfit discloses using blends SURLYN the chemical for making the inner cover and the '981 Patent is the formulation for ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and SURLYN 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. As taught from Exhibit I, SURLYN 8940 has a Shore D hardness of 65; SURLYN 9910 has a Shore D hardness of 64, see

Exhibit I. Therefore, this cover blend inherently has a hardness of 60 or more. Proudfit discloses the outer layer being a blend of balata. An example of the blend is disclosed in Table 7 reproduced below.

TABLE 7

Composition of Outer Layer (Parts by Weight)	
Trans Polyisoprene (TP-301)	60.00
Polybutadiene	40.00
Zinc Oxide	5.00
Titanium DiOxide	17.00
Ultramarine Blue color	.50
Zinc DiAcrylate	35.00
Peroxide (Varox 230 XL)	2.50
Total	160.00

Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadiene is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore hardness of less than 64.

While Proudfit lacks disclosing the outer layer being made from polyurethane, in an analogous golf ball, Molitor '637 teaches using polyurethane, see Molitor '637, col. 5, ll. 33-41 and col. 18, examples 16 and 17. The request points out on page 25, ll. 7-15, why the use of polyurethane to one of ordinary skill in the art would be readily apparent given that those skilled in the art were more critical of the mechanical properties of a particular material then the chemical composition (material type) of the material and those remarks are incorporated herein. In other words, it was not critical to the "golf ball inventions" of those skilled in the art as to what materials were used to construct the golf balls so long as the materials had the desired mechanical properties which would yield the particular mechanical performance parameters the inventors were trying to achieve, e.g. improved processability; improved durability; cost

effectiveness; user acceptance of performance (similar "click" and "feel" to balata) of the golf ball product made from those materials.

The request on page 25, ll. 1-21, explains why one of ordinary skill in the art would be motivated to substitute the outer cover layer taught in Molitor '637 for the outer cover layer disclosed in Proudfit:

> Moreover, as recognized by the inventor himself, the particular materials used in the golf balls were not as important as the mechanical properties of those materials. (See Exhibit G at 334.) Because those skilled in the art would look to the mechanical properties of the materials when determining whether certain materials can be substituted for one another, those skilled in the art would recognize that the Estane polyurethane taught by Molitor '637 (having a flexural modulus of about 25,000 psi) and the polymeric outer cover layer material of Proudfit (which has a modulus of between 20,000 and 25,000 psi) would have been substitutable for one another. (Compare Exhibit J with Proudfit, col. 6, lines 28-31.) This would have further suggested to those skilled in the art that the soft polymeric materials taught by Molitor '637, including, for example, the relatively soft, low modulus polyurethane material of Molitor '637 would have been substitutable for the soft polymeric outer cover layer as taught by Proudfit.
>
> It would have been obvious to one of ordinary skill in the art at the time of invention to modify the balata-based outer cover layer of Proudfit to include the polyurethane outer cover layer of Molitor '637 because polyurethane was a well known substitute to balata and gives a number of advantages over balata as would have been readily appreciated by those skilled in the art. These advantages include: (1) improved processability; (2) improved durability when compared to balata; (3) cost-effectiveness when compared to balata; and (4) having a good "click" and "feel." ... All of this would have led one of ordinary skill in the art to replace the soft, low modulus balata-based outer cover layer of Proudfit with the soft, low modulus polyurethane outer cover layer material of Molitor '637 at the time of the alleged invention.

Therefore, one of ordinary skill in the art would find the claimed invention as obvious for the motivation given in the request on page 25, ll. 1-21.

This rejection of claim 1 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #6.

The requester submits on pages 22-25 that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 1	Proudfit
A golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively**

	hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 60 or more molded on said core,	See below with respect to Shore D hardness.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"The **thickness of the inner layer** can be within the range of **about 0.0250 to 0.2875** inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, ll. 37-40) "The preferred dimensions are ... and **inner layer thickness of 0.037 inch...**" (Proudfit, col. 7, ll. 43-44)
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30)
an outer cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12** which comprises a relatively hard inner layer 13 of one or more ionomer resins **and a relatively soft outer layer 14 of polymeric material.**" (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 64 or less molded on said inner cover layer,	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch...." (Proudfit, col. 7, ll. 40-46)
said outer cover layer comprising a relatively soft polyurethane material.	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17)

As expressed in the request on page 26 and identified above within the claim chart, Proudfit teaches a golf ball have a two-piece cover including a hard, ionomeric inner cover layer and a soft balata blend outer cover layer. Proudfit lacks in disclosing the use of polyurethane as the material for the outer cover layer. Instead, as shown in Table 7, reproduced below, Proudfit discloses the outer cover layer being made of a blend of balata.

TABLE 7

Composition of Outer Layer (Parts by Weight)	
Trans Polyisoprene (TP-301)	60.00
Polybutadiene	40.00
Zinc Oxide	5.00
Titanium DiOxide	17.00
Ultramarine Blue color	.50
Zinc DiAcrylate	35.00
Peroxide (Varox 230 XL)	2.50
Total	160.00

However, those skilled in the art understand the disadvantages of balata covered golf balls. As admitted by the patent owner

> Despite all the benefits of balata, balata covered golf balls are easily cut and/or damaged if mis-hit. Golf balls produced with balata or balata-containing cover compositions therefore have a relatively short lifespan.

(Sullivan '873, col. 1, ll. 39-42). The next step in golf ball cover technology to overcome the problems with balata was the use of SURLYN as an outer cover. However, as described in the request on page 26 Wu teaches the problem with SURLYN as a outer cover on a golf ball.

> **The problem with SURLYN covered golf balls ... is that they lack the "click" and "feel" which golfers had become accustomed to with balata.** "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit.
>
> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN, it has a relatively low price compared to balata and provides superior cut resistance over balata. **However, unlike SURLYN covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.**

(Wu col. 1, ll. 36-46 (emphasis added)).

As explained in the request on page 26 through page 27 those skilled in the art at the time the claimed invention was made were more critical of the mechanical properties of the materials that constructed the layers which impacted the performance of the golf ball more than the materials themselves. See Exhibit G. As identified above Proudfit lacks disclosing polyurethane as the outer cover layer. In analogous golf ball device, Wu's polyurethane material inherently has a flexural modulus of 23,000 psi as averred within the Rule 132 Declaration of Jeffrey L. Dalton at para. 7. Proudfit's outer cover layer material is disclosed as having a flexural modulus of between about 20,000 psi and 25,000 psi. (Proudfit, col. 6, ll. 28-31) Thus, Wu's cover material's flexural modulus falls within the range of Proudfit's cover material. Moreover, Wu's polyurethane material inherently has a Shore D hardness of about 58. See Decl. of Dalton at para. 6. Thus, as evidenced by this declaration, Wu's polyurethane material falls within the claimed range of the outer layer material have a Shore D hardness of less than 64.

Thus, as pointed out in the request on page 27, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute Wu's polyurethane golf ball cover material for Proudfit's balata-blend cover material for the advantages described in this part of the request which is quoted below:

> Based on Wu's teachings, one of ordinary skill in the art would have recognized the substitutability of soft polyurethane for soft balata-based materials and the advantages of making such a substitution. These advantages include (1) low price compared to balata; (2) better cut resistance when compared to balata; and (3) a "click" and "feel" that is similar to balata. Moreover, the replacing the balata-material taught by Proudfit would have been obvious to those skilled in the art prior to November 9, 1995 because before that time, the Titleist Professional™ golf ball, which had used Wu's polyurethane material, had replaced balata-covered balls as the market leader. (See Decl. of Jeffrey L. Dalton at ¶¶ 3-4.) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to modify Proudfit's golf ball

by replacing the soft balata-based outer cover layer with an outer cover layer made of soft polyurethane material because Wu's polyurethane material has similar mechanical properties and provides numerous advantages over balata while exhibiting the "click" and "feel" of balata.

This rejection of claim 1 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #7.

The requester submits on pages 27-29 that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 1	Proudfit
A golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core

	was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 60 or more molded on said core,	See below with respect to Shore D hardness.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"The **thickness of the inner layer** can be within the range of **about 0.0250 to 0.2875** inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, ll. 37-40) "The preferred dimensions are ... and **inner layer thickness of 0.037 inch...**" (Proudfit, col. 7, ll. 43-44)
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type — Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30)
an outer cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12** which comprises a relatively hard inner layer 13 of one or more ionomer resins **and a relatively soft outer layer 14 of polymeric material**." (Proudfit, col. 7, ll. 21-24)
a Shore D hardness of 64 or less molded on said inner cover layer,	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.
said outer cover layer having a thickness of 0.010 to 0.070	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of

inches, and	1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch...." (Proudfit, col. 7, ll. 40-46)
said outer cover layer comprising a relatively soft polyurethane material.	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17)

As expressed in the request on page 27 and identified above within the claim chart, Proudfit teaches a golf ball have a two-piece cover including a hard, ionomeric inner cover layer and a soft balata blend outer cover layer. Proudfit lacks in disclosing the use of polyurethane as the material for the outer cover layer. Instead, as shown in Table 7, reproduced below, Proudfit discloses the outer cover layer being made of a blend of balata.

TABLE 7

Composition of Outer Layer (Parts by Weight)	
Trans Polyisoprene (TP-301)	60.00
Polybutadiene	40.00
Zinc Oxide	5.00
Titanium DiOxide	17.00
Ultramarine Blue color	.50
Zinc DiAcrylate	35.00
Peroxide (Varox 230 XL)	2.50
Total	160.00

However, those skilled in the art understand the disadvantages of balata covered golf balls. As admitted by the patent owner:

> [d]espite all the benefits of balata, balata covered golf balls are easily cut and/or damaged if mis-hit. Golf balls produced with balata or balata-containing cover compositions therefore have a relatively short lifespan.

(Sullivan '873, col. 1, ll. 39-42). With this disadvantage of balata covered golf balls, golf ball designers looked for materials that would provide the same "click" and "feel" golfers expected and have increased durability.

As pointed out in the request on page 28, lines 4-15, in an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a **cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a **thermoplastic urethane having a shore A hardness** less than 95 and (2) an ionomer having a shore D hardness greater than 55. The ionomer comprises olefinic groups having two to four carbon atoms copolymerized with acrylic or methacrylic acid groups and cross-linked with metal ions, preferably sodium or zinc ions. **The primary components of the blended cover are set at a weight ratio so as to result in a cover material after molding having a shore C hardness within the range of 70 to 85, preferably 72 to 76.** Preferably, the urethane component of the cover material has a tensile strength greater than 2500 psi and an elongation at break greater than 250%. A preferred cover material comprises about 8 parts of the thermoplastic urethane and between 1 and 4 parts ionomer. Preferably, the cover is no greater than 0.060 inch thick. Thinner covers appear to maximize the short iron playability characteristics of the balls.

(Molitor '751, col. 33-57 (emphasis added)). Thus, Molitor '751 teaches having a outer cover layer with a Shore C hardness less than 85 and preferably between 72 and 76. Moreover, Molitor '751 teaches what golf balls are included in the definition of "two-piece" ball within its instant specification.

> The phrase "two-piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and other balls having non-wound cores.**

Molitor '751, col. 3, ll. 7-12 (emphasis added)). Proudfit, likewise, teaches the two-piece golf balls can fit within this definition.

> FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material.

(Proudfit, col. 7, ll. 21-24).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE

bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values with a given range, in this instance Shore C, for given materials, in this instance a polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As stated in the request spanning pages 28-29

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft outer cover layer of Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

This rejection of claim 1 based on Proudfit in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 2

Proposed Third Party Requester Rejection: Ground #8.

The requester submits on pages 29-30 that claim 2 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #9.

In the alternative, the requester submits on page 30 that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 2	Nesbitt
The golf ball according to claim 1,	See above.
wherein said golf ball has an	"According to the United States Golf Association Rules, the

overall diameter of 1.680 inches or more.	minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin .... " (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 2 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #10.

The requester submits on page 30 of the request that claim 1 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 2	Nesbitt
The golf ball according to claim 1,	See above.
wherein said golf ball has an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a

	dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin .... " (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 2 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #11.

The requester submits on page 30 of the request that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 2	Nesbitt
The golf ball according to claim 1,	See above.
wherein said golf ball has an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin .... " (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 2 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #12.

The requester submits on pages 30-31 that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 2	Proudfit
The golf ball according to claim 1,	See above.
wherein said golf ball has an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 2 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #13.

The requester submits on pages 30-31 that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 2	Proudfit
The golf ball according to claim 1,	See above.
wherein said golf ball has an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 2 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #14.

The requester submits on pages 30-31 that claim 2 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor, U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 2	Proudfit
The golf ball according to claim 1,	See above.
wherein said golf ball has an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 2 based on Proudfit in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 3

Proposed Third Party Requester Rejection: Ground #15.

The requester submits on pages 31-32 that claim 3 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #16.

In the alternative, the requester submits on page 32 that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 3	Nesbitt
The golf ball according to claim 1,	See above.
wherein said inner cover layer has a thickness of about 0.050 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
and said golf ball has an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 3 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #17.

The requester submits on page 32 that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 3	Nesbitt
The golf ball according to claim 1,	See above.
wherein said inner cover layer has a thickness of about 0.050 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
and said golf ball has an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 3 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #18.

The requester submits on page 32 that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 3	Nesbitt
The golf ball according to claim 1,	See above.
wherein said inner cover layer has a thickness of about 0.050 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
and said golf ball has an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.)

	"This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 3 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejections: Ground #19-21.

The requester submits on pages 32-33 that claim 3 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637); Wu, U.S. Pat. No. 5,334,673 (Wu); or Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

These rejections are not adopted for the reasons given in Order Granting Reexamination, dated 04/07/2006, at paragraph #23, which is incorporated herein.

Re. Claim 4

Proposed Third Party Requester Rejection: Ground #22.

The requester submits on pages 34-38 that claim 4 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #23.

In the alternative, the requester submits on pages 34-48 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Molitor '637 discloses, teaches or suggests the claim limitations.

Claim 4	Nesbitt mentioning Molitor '637
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)
a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
Shore D hardness of about 60 or more molded over said spherical core,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.

said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
an outer cover layer having	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60).
a Shore D hardness of about 64 or less	**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55.
disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled

	configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)
said outer cover layer comprising polyurethane based material.	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873

Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

Also, as mentioned above, Molitor '637 teaches in TABLE 10 an outer layer made from a thermoplastic polyurethane identified as ESTANE 58133. A review of the scientific literature yields that ESTANE 58133 has an inherent Shore D hardness of 55, see Exhibit J "ESTANE 58133 TPU Product Data Sheet". A Shore D hardness of 55 is within the range claimed of Shore D hardness less than 64. Therefore, Molitor '637's teaching of using ESTANE 58133 inherently meets the claim limitation of providing a outer cover layer of polyurethane material having a Shore hardness of less than 64. Moreover, Molitor '637 teaches a list of materials that may adapted for use in the invention:

> Homopolymeric and copolymeric substances, such as (1) vinyl resins formed by the polymerization of vinyl chloride or by the copolymerization of vinyl chloride with unsaturated polymerizable compounds, e.g., vinyl esters; (2) polyolefins such as polyethylene, polypropylene, polybutylene, transpolyisoprene, and the like, including copolymers of polyolefins; (3) polyurethanes such as are prepared from polyols and organic polyisocyanates; (4) polyamides such as polyhexamethylene; (5) polystyrene, high impact polystyrene, styrene acrylonitrile copolymer and ABS, which is acrylonitrile, butadiene styrene copolymer; (6) acrylic resins as exemplified by the copolymers of methylmethacrylate, acrylonitrile, and styrene, etc.; (7) thermoplastic rubbers such as the urethanes, copolymers of ethylene and propylene, and transpolyisoprene, block copolymers of styrene and

> cispolybutadiene, etc.; and (8) polyphenylene oxide resins, or a blend with high impact polystyrene known by the trade name "Noryl."

See Molitor '637, col. 5, ll. 33-50.

In addition, Nesbitt discloses its outer layer was made from SURLYN 1855 (now SURLYN 9020). This material had inherently flexural modulus of about 14,000 psi and a Shore hardness of 55, see Exhibit I "Typical Properties for Selected Grades of SURLYN". Moreover, as admitted by the inventor Sullivan of the '873 patent, golf ball designers knew that the mechanical properties of the materials used as a golf-ball cover layer were more critical to golf ball performance than the actual materials themselves, see Exhibit G at 334.

Thus, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

This rejection of claim 4 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #24.

The requester submits on pages 38-40 of the request that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Wu discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 4	Nesbitt mentioning Molitor '637 with Wu (teaching)
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)
a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
Shore D hardness of about 60 or more molded over said spherical core,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.
said inner cover layer comprising an ionomeric resin including no	"Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637

more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
an outer cover layer having	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66.)
a Shore D hardness of about 64 or less	**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55. Wu: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of

	curative, and amount of catalyst used. It has been found that the degree of cure of the cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.) See below for more explanation of how Wu teaches and/or suggests the Shore D hardness of 64 or less limitation explanation.
disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)
said outer cover layer comprising polyurethane based material.	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. **Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the

	cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.)

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As mentioned above, Nesbitt mentioning Molitor '637 teaches the use of particular polyurethane materials for the use as an outer layer. Wu teaches that polyurethane was being used as the outer layer of golf ball *circa* 1993. Wu further teaches in col. 1:36-46 that SURLYN covered golf balls lack the "click" and "feel" of balata which golfers have become accustomed to such sensations and polyurethane covered golf balls can be made to have a similar "click" and "feel" of balata. Wu also at least teaches that polyurethanes made according to its invention will have Shore D hardness directly proportional to the degree of cure of the cover; and this Shore D hardness ranges from 10 to 30, preferably 12 to 20 on the Shore D scale, see col. 6:26-38. This teaching of Shore D hardness is directed to an intermediate curing step product prior to the final molding process to finish the golf ball. Exhibit C demonstrates the actual finished golf ball product having the cover layer that Wu teaches within its disclosure. Exhibit C teaches that the golf ball taught therein is covered by the following patents: 4,783,078; 4,846,910; 4,858,923; 4,904,320; 4,915,390; 5,007,594; 5,080,367; 5,133,509; **5,334,673**; and D339,074. The '673 Patent teaches the cover sock of the Exhibit C finished golf ball. Exhibit C teaches that the golf ball taught therein has a cover material made from an "elastomer", having a thickness of .050", and 58 Shore D hardness. All three properties are within the range of mechanical properties of the claim invention (polyurethane is an elastomer, cover layer thickness ranges from 0.010 to 0.070 inches and the Shore D hardness is less that 64). Because it has been admitted by the inventor of the Sullivan '893 patent that the particular chemical properties of the materials (the chemical composition) used in the construction of a golf ball lack criticality as compared to the mechanical properties (the Shore D hardness, flexural modulus, layer thickness) of those compounds used for constructing the different layers (Exhibit G at 334), one of ordinary skill in

the art at the time the invention was made would find it obvious to incorporate the teachings of Wu which inherently include the teachings of Shore hardness for the fully cured cover layer as taught in Exhibit C as obvious equivalent materials in order to achieve the same end result of providing a cover layer that has the same "click" and "feel" of a balata cover which the extra durability of an elastomeric material.

This rejection of claim 4 based on Nesbitt mentioning Molitor '637 in view of Wu as evidenced by Exhibit C was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #25.

The requester submits on pages 40-42 of the request that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 4	Nesbitt mentioning Molitor '637
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)

a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer having	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
Shore D hardness of about 60 or more molded over said spherical core,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
an outer cover layer having	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.)

	Nesbitt: "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60).
a Shore D hardness of about 64 or less	**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55.
disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)
said outer cover layer comprising polyurethane based material.	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col: 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.

As shown above in the claim chart, Nesbitt mentioning Molitor '673 suggests the use of a soft outer cover layer including a polyurethane material. In an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core **a cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel **cover of the golf ball** of the invention is made of a composition comprising a blend of (1) **a thermoplastic urethane having a shore A hardness less than 95** and (2) **an ionomer having a shore D hardness greater than 55.**

(Molitor '751, col. 2, ll.33-49 (emphasis added)).

Moreover, in explaining what constitutes a two-piece golf ball, Molitor '751 teaches that:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt**, and other balls have non-wound cores.

(Molitor '751, col. 3, ll. 7-12 (emphasis added)).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values

with a given range, in this instance Shore C, for given materials, in this instance polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As stated in the request on page 39

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft outer cover layer of Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan

'873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As stated in the request spanning pages 41-42

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft non-ionomeric polymeric outer cover layer incorporated by Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

Moreover, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

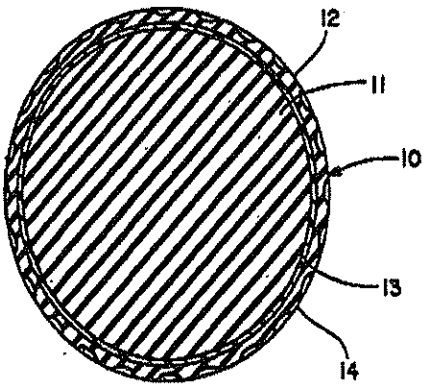
This rejection of claim 4 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #26.

The requester submits on pages 42-46 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

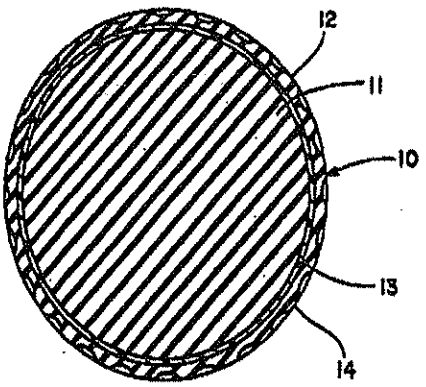
Claim 4	Proudfit
A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes

	a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
Shore D hardness of about 60 or more molded over said spherical core,	Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64. Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.) "The inner layer can be molded in one of two methods: 1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core. 2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.) See below with respect to Shore D hardness.
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type — Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30) SURLYN 8940 and 9910 are both low acid ionomer resins

	containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
having a modulus of from about 15,000 to about 70,000 psi; and	"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .) "Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.) The composition of the inner cover layer is described in Table 6. **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30.)
an outer cover layer having	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.

<table>
<tr>
<td>a Shore D hardness of about 64 or less</td>
<td>"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)

"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17.) An example of this blend is disclose in Table 7 reproduced below.

TABLE 7
Composition of Outer Layer (Parts by Weight)
<table>
<tr><td>Trans PolyIsoprene (TP-301)</td><td>60.00</td></tr>
<tr><td>Polybutadiene</td><td>40.00</td></tr>
<tr><td>Zinc Oxide</td><td>5.00</td></tr>
<tr><td>Titanium DiOxide</td><td>17.00</td></tr>
<tr><td>Ultramarine Blue color</td><td>.50</td></tr>
<tr><td>Zinc DiAcrylate</td><td>35.00</td></tr>
<tr><td>Peroxide (Varox 230 XL)</td><td>2.50</td></tr>
<tr><td>Total</td><td>160.00</td></tr>
</table>
Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td>
</tr>
<tr>
<td>disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,</td>
<td>Figure 1 of Proudfit shows dimples formed on the outer surface
 
</td>
</tr>
<tr>
<td>said outer cover layer comprising polyurethane based material.</td>
<td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below.</td>
</tr>
</table>

As pointed out in the request on pages 45 and 46:

> While Proudfit may not expressly disclose the use of polyurethane as an outer cover material, it would have been obvious given that "[t]he patent literature is replete with proposed cover formulations seeking to improve upon the balata and ionomer covers [including] [p]olyurethane ...." (See Molitor '751, col. 2, lines 9-12.) Soft polyurethane materials had been known to be a substitute for balata covers for decades prior to the filing of the '130 patent.
>
> For example, Molitor '637 discloses the use of polyurethane material as a soft polymeric material that may be used as an outer cover layer of a golf ball. (See Molitor '637, col. 5, lines 33-41; col. 18, Examples 16 and 17.) One exemplary polyurethane material used by Molitor as an outer cover material includes Estane 58133.
>
> As was readily appreciated by those skilled in the art--including the inventor of the '130 patent--the types of materials used in a golf ball are not as critical to a golf ball's playability as are the mechanical properties of those materials. (See Exhibit G at 334.) The Estane 58133 is a relatively soft material and has a Shore D hardness of 55 and is also a low flexural modulus material having a modulus of about 25,000 psi. (See Exhibit J.) Proudfit's outer cover layer is also relatively soft and has a flexural modulus between 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31.) Due to the similarities between these two materials, the ordinarily skilled artisan would have recognized the substitutability of these two materials as well as the benefits of using polyurethane as an outer cover material.

On page 46, the request concludes:

> It would have been obvious to one of ordinary skill in the art at the time of invention to modify the balata-based outer cover layer of Proudfit to include the Estane polyurethane outer cover layer material of Molitor '637 because such was a well known substitute to balata and gives a number of advantages over balata as would have been readily appreciated by those skilled in the art. These advantages include: (1) improved processability; (2) improved durability when compared to balata; (3) cost-effectiveness when compared to balata; and (4) having a good "click" and "feel." (See *supra* [regarding the what "click" and "feel" mean to a golfer]) All of this would have led one of ordinary skill in the art to replace the soft balata outer cover layer of Proudfit with the soft polyurethane outer cover layer of Molitor '637 at the time of the alleged invention.

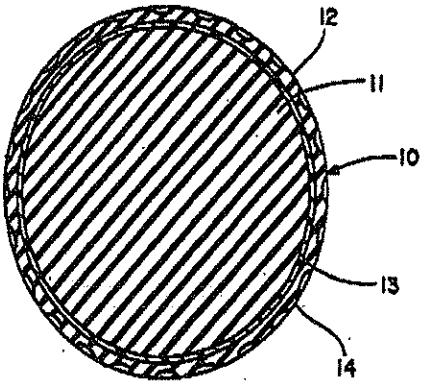
This rejection of claim 4 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #27.

The requester submits on pages 46-48 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

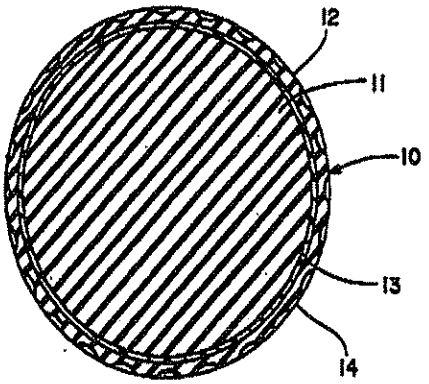
Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 4	Proudfit
A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a

	90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
Shore D hardness of about 60 or more molded over said spherical core,	Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64. Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.) "The inner layer can be molded in one of two methods: 1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core. 2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.) See below with respect to Shore D hardness.
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** **Composition of Inner Layer of Cover (Parts by Weight)** Ionomer Type — Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30) SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No.

	4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
having a modulus of from about 15,000 to about 70,000 psi; and	"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .) "Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.) The composition of the inner cover layer is described in Table 6. **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type — Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30.)
an outer cover layer having	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.
a Shore D hardness of about 64 or less	"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.) "... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-

<table>
<tr><td></td><td>17.) An example of this blend is disclose in Table 7 reproduced below.
TABLE 7
Composition of Outer Layer (Parts by Weight)
Trans PolyIsoprene (TP-301) 60.00
Polybutadiene 40.00
Zinc Oxide 5.00
Titanium DiOxide 17.00
Ultramarine Blue color .50
Zinc DiAcrylate 35.00
Peroxide (Varox 230 XL) 2.50
Total 160.00
Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td></tr>
<tr><td>disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,</td><td>Figure 1 of Proudfit shows dimples formed on the outer surface
 
</td></tr>
<tr><td>said outer cover layer comprising polyurethane based material.</td><td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below.</td></tr>
</table>

As pointed out in the request on pages 46 and 47:

... Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer of a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the soft balata

outer cover layer of Proudfit to include the soft polyurethane material taught by Wu. Wu teaches that: "The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit. It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and 'feel" of balata. (Wu at col. 1, lines 36-46.) As the inventor of the '130 patent had indicated in a 1994 publication, golf ball designers understood that the mechanical properties of the layers impacted the performance of the golf ball more than the materials themselves. (Exhibit G at 334.) Additionally, Wu's polyurethane material inherently has a flexural modulus of about 23,000 psi as measured in accordance with ASTM standards. (Decl. of Jeff Dalton at ¶ 7.) Proudfit's outer cover layer material has a flexural modulus of between about 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31 .) Thus, one of ordinary skill in the art would have appreciated that using Wu's polyurethane as Proudfit's outer cover layer would have provided similar playability characteristics as well as numerous advantages including, for example, durability.

Based on Wu's teachings, one of ordinary skill in the art would have recognized the substitutability of soft polyurethane for soft balata-based materials and the advantages of making such a substitution. These advantages include (1) low price compared to balata; (2) better cut resistance when compared to balata; and (3) a "click" and "feel" that is similar to balata. Moreover, the replacing the balata-material taught by Proudfit would have been obvious to those skilled in the art prior to November 9, 1995 because before that time, the Titleist Professional™ golf ball, which had used Wu's polyurethane material, had replaced balata-covered balls as the market leader. (See Exhibit C; see also Decl. of Jeffery L. Dalton at ¶¶ 3-4.)

On page 48 the request concludes with:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with an outer cover layer made of soft polyurethane material because polyurethane provides numerous advantages over balata while exhibiting the "click" and "feel" of balata.

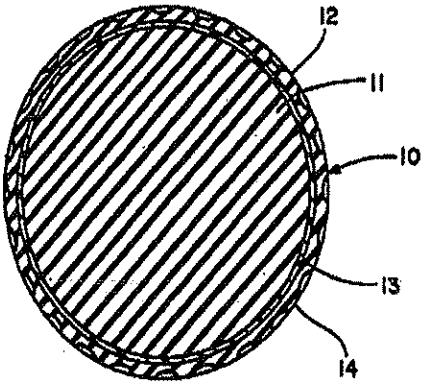
This rejection of claim 4 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #28.

The requester submits on pages 48-49 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 4	Proudfit
A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12)
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a

	90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)
Shore D hardness of about 60 or more molded over said spherical core,	Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64. Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.) "The inner layer can be molded in one of two methods: 1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core. 2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.) See below with respect to Shore D hardness.
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** **Composition of Inner Layer of Cover (Parts by Weight)** **Ionomer Type** / **Blend Ratio** Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30) SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No.

	4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
having a modulus of from about 15,000 to about 70,000 psi; and	"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .) "Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.) The composition of the inner cover layer is described in Table 6. **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 75% Zinc- Surlyn 9910 25% (Proudfit, col. 8, ll. 22-30.)
an outer cover layer having	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.
a Shore D hardness of about 64 or less	"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.) "... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-

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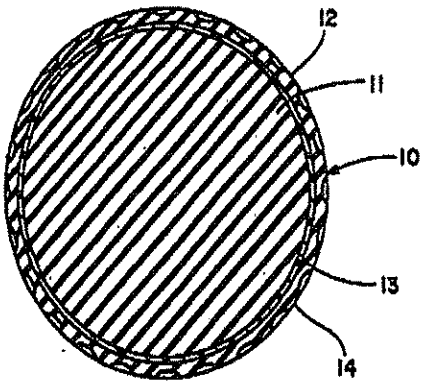
Zinc DiAcrylate 35.00
Peroxide (Varox 230 XL) 2.50
Total 160.00
Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td></tr>
<tr><td>disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,</td><td>Figure 1 of Proudfit shows dimples formed on the outer surface
 
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<tr><td>said outer cover layer comprising polyurethane based material.</td><td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below.</td></tr>
</table>

As pointed out in the request on pages 48 and 49:

...Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer for a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Proudfit's

golf ball by replacing the soft balata outer cover layer with the soft polyurethane outer cover layer taught by Molitor '751.

Molitor '751 teaches that: It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55. (Molitor '751, col. 2, lines 33-49.) In explaining what a "two-piece" golf ball is, the Molitor '751 patent explains that: The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and Other balls having non-wound cores. (Molitor '751, col. 2, lines 7-12.)

Proudfit teaches a "two-piece" golf ball that fits within this definition. Molitor '751 explains that the advantages of using a cover layer including a soft polyurethane material on a two-piece golf ball, such as the golf ball of Proudfit, include "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two- piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

Molitor expresses the hardness of the cover material as a Shore C hardness of less than 85, preferably 70 to 85 and most preferably 72 to 76. (Molitor '751, col. 4, lines 21-25.) Based on Callaway's own measurements, a Shore C hardness of 73 is equal to a Shore D hardness of 47. (See U.S. Patent No. 6,905,648, Table 19 (Exhibit L.) A cover material having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

On page 49 the request concludes:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the soft balata outer cover layer of Proudfit with the soft outer cover layer including a soft polyurethane material as taught by Molitor '751 to provide golf balls that have "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

. This rejection of claim 4 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 5

Proposed Third Party Requester Rejection: Ground #29.

The requester submits on pages 50-51 that claim 5 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #30.

In the alternative, the requester submits on page 51 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 5	Nesbitt
A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of

	a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more..	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 5 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #31.

The requester submits on page 51 of the request that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 5	Nesbitt

A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 5 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #32.

The requester submits on page 51 of the request that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 5	Nesbitt
A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 5 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #33.

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 5	Proudfit
A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.)
said golf ball having an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 5 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #34.

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 5	Proudfit
A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.)
said golf ball having an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 5 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #35.

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 5	Proudfit
A golf ball according to claim 4, wherein	See above.
said inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.)
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.)
said golf ball having an overall diameter of 1.680 inches or more.	"The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer

	diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.)

This rejection of claim 5 based on Proudfit in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 6

Proposed Third Party Requester Rejection: Ground #36.

The requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #37.

In the alternative, the requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 6	Nesbitt
A golf ball according to claim 4 wherein	See above.
said inner cover layer has a thickness of about 0.050 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 6 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #38.

In the alternative, the requester submits on page 53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 6	Nesbitt
A golf ball according to claim 4 wherein	See above.
said inner cover layer has a thickness of about 0.050 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 6 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #39.

In the alternative, the requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 6	Nesbitt
A golf ball according to claim 4 wherein	See above.
said inner cover layer has a thickness of about 0.050 inches and	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.)
said outer cover layer has a thickness of about 0.055 inches,	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.)
said golf ball having an overall diameter of 1.680 inches or more.	"According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.)

This rejection of claim 6 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejections: Ground #40-42.

The requester submits on pages 53-54 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637); Wu, U.S. Pat. No. 5,334,673 (Wu); or Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

These rejections are not adopted for the reasons given in Order Granting Reexamination, dated 04/07/2006, at paragraph #23, which is incorporated herein.

Re. Claim 7

Proposed Third Party Requester Rejection: Ground #43.

The requester submits on pages 56-59 that claim 7 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #44.

In the alternative, the requester submits on pages 56-59 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Molitor '637 discloses, teaches or suggests the claim limitations.

Claim 7	Nesbitt mentioning Molitor '637
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)
a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer molded over said spherical core to form a spherical intermediate ball,	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
said inner cover layer having a Shore D hardness of at least 60,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.
said inner cover layer comprising	"Reference is made to the application Ser. No. 155,658,

an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34). Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.)
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)
said outer cover having a Shore D hardness of 64 or less,	**Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55.

said outer layer comprising a polyurethane,	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.
said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.	Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi. Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan

'873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

Exhibit J is a product information sheet for Estane 58133 a material that is taught to be used as an outer layer. Exhibit J teaches that Estane 58133 has a flexural modulus of 25,000 psi.

This rejection of claim 7 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #45.

The requester submits on pages 59-61 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Wu discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 7	Nesbitt mentioning Molitor '637
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)
a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer molded over said spherical core to form a spherical intermediate ball,	"Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
said inner cover layer having a Shore D hardness of at least 60,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.
said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61).

	Molitor '637: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34). Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.)
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)
said outer cover having a Shore D hardness of 64 or less,	**Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55. **Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the

	cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.) See below for more explanation of how Wu teaches and/or suggests the Shore D hardness of 64 or less limitation explanation.
said outer layer comprising a polyurethane,	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. **Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66.)
said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.	Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi. Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As mentioned above, Nesbitt mentioning Molitor '637 teaches the use of particular polyurethane materials for the use as an outer layer. Wu teaches that polyurethane was being used as the outer layer of golf ball *circa* 1993. Wu further teaches in col. 1:36-46 that SURLYN

covered golf balls lack the "click" and "feel" of balata which golfers have become accustomed to such sensations and polyurethane covered golf balls can be made to have a similar "click" and "feel" of balata. Wu also at least teaches that polyurethanes made according to its invention will have Shore D hardness directly proportional to the degree of cure of the cover; and this Shore D hardness ranges from 10 to 30, preferably 12 to 20 on the Shore D scale, see col. 6:26-38. This teaching of Shore D hardness is directed to an intermediate curing step product prior to the final molding process to finish the golf ball. Exhibit C demonstrates the actual finished golf ball product having the cover layer that Wu teaches within its disclosure. Exhibit C teaches that the golf ball taught therein is covered by the following patents: 4,783,078; 4,846,910; 4,858,923; 4,904,320; 4,915,390; 5,007,594; 5,080,367; 5,133,509; **5,334,673**; and D339,074. The '673 Patent teaches the cover sock of the Exhibit C finished golf ball. Exhibit C teaches that the golf ball taught therein has a cover material made from an "elastomer", having a thickness of .050", and 58 Shore D hardness. All three properties are within the range of mechanical properties of the claim invention (polyurethane is an elastomer, cover layer thickness ranges from 0.010 to 0.070 inches and the Shore D hardness is less that 64). Because it has been admitted by the inventor of the Sullivan '893 patent that the particular chemical properties of the materials (the chemical composition) used in the construction of a golf ball lack criticality as compared to the mechanical properties (the Shore D hardness, flexural modulus, layer thickness) of those compounds used for constructing the different layers (Exhibit G at 334), one of ordinary skill in the art at the time the invention was made would find it obvious to incorporate the teachings of Wu which inherently include the teachings of Shore hardness for the fully cured cover layer as taught in Exhibit C as obvious equivalent materials in order to achieve the same end result of

providing a cover layer that has the same "click" and "feel" of a balata cover which the extra durability of an elastomeric material.

This rejection of claim 7 based on Nesbitt mentioning Molitor '637 in view of Wu as evidenced by Exhibit C was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #46.

The requester submits on pages 61-63 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

Claim 7	Nesbitt mentioning Molitor '637 with Wu (teaching)
A multi-layer golf ball comprising:	"The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.)
a spherical core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.)
an inner cover layer molded over	"Disposed on the spherical center or core 12 is a first

said spherical core to form a spherical intermediate ball,	layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.)
said inner cover layer having a Shore D hardness of at least 60,	"[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.) "[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.) Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65.
said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34). Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.)
having a modulus of from about 15,000 to about 70,000 psi; and	See below.
a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,	"An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.) "[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.)

said outer cover having a Shore D hardness of 64 or less,	**Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). **Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60) ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet) Also see below why this cover material has inherently a Shore D hardness of 55. **Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.) See below for more explanation of how Wu teaches and/or suggests the Shore D hardness of 64 or less limitation explanation.
said outer layer comprising a polyurethane,	**Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.) **Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and

	organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).) Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. **Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66.)
said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.	Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi. Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi.

As shown above in the claim chart, Nesbitt mentioning Molitor '673 suggests the use of a soft outer cover layer including a polyurethane material. In an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core **a cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel **cover of the golf ball** of the invention is made of a composition comprising a blend of (1) **a thermoplastic urethane having a shore A hardness less than 95** and (2) **an ionomer having a shore D hardness greater than 55.**

(Molitor '751, col. 2, ll.33-49 (emphasis added)).

Moreover, in explaining what constitutes a two-piece golf ball, Molitor '751 teaches that:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer**

> **beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt**, and other balls have non-wound cores.

(Molitor '751, col. 3, ll. 7-12 (emphasis added)).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values with a given range, in this instance Shore C, for given materials, in this instance polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As stated in the request spanning page 63

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft non-ionomeric polymeric outer cover layer incorporated by Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes

> "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

Moreover, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

This rejection of claim 7 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

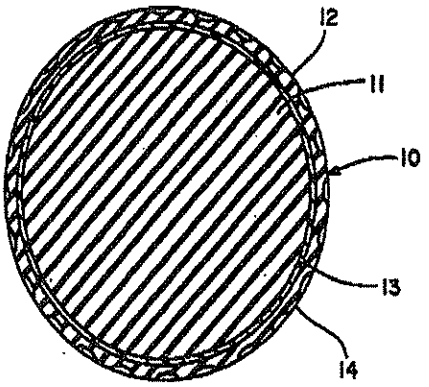
Proposed Third Party Requester Rejection: Ground #47.

The requester submits on pages 63-67 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 7	Proudfit

A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12)
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer molded over said spherical core to form a spherical intermediate ball,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "The inner layer can be molded in one of two methods: 1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core. 2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)

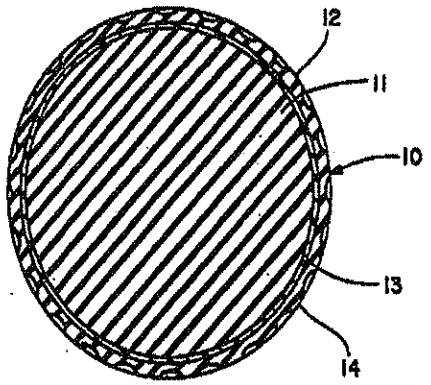
said inner cover layer having a Shore D hardness of at least 60,	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30) Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64. Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)
said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"The composition of the inner cover layer is described in Table 6." **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30) SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910

<table>
<tr><td></td><td>would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.</td></tr>
<tr><td>having a modulus of from about 15,000 to about 70,000 psi; and</td><td>"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .)

"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.)

The composition of the inner cover layer is described in Table 6.

TABLE 6
Composition of Inner Layer of Cover (Parts by Weight)
Ionomer Type — Blend Ratio
Sodium- Surlyn 8940 — 75%
Zinc- Surlyn 9910 — 25%

(Proudfit, col. 8, ll. 22-30.)</td></tr>
<tr><td>a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,</td><td>Figure 1 of Proudfit shows dimples formed on the outer surface
 
</td></tr>
<tr><td>said outer cover having a Shore D hardness of 64 or less,</td><td>"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)</td></tr>
</table>

	"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below. An example of this blend is disclose in Table 7 reproduced below. **TABLE 7** Composition of Outer Layer (Parts by Weight) Trans Polyisoprene (TP-301) 60.00 Polybutadiene 40.00 Zinc Oxide 5.00 Titanium DiOxide 19.00 Ultramarine Blue color .50 Zinc DiAcrylate 35.00 Peroxide (Varox 230 XL) 2.50 Total 160.00 Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that **cover has a Shore D hardness of 52**. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.
said outer layer comprising a polyurethane,	"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below.
said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.	"The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.)

As pointed out in the request on page 66 and 67:

While Proudfit may not expressly disclose the use of polyurethane as an outer cover material, it would have been obvious given that "[t]he patent literature is replete with proposed cover formulations seeking to improve upon the balata and ionomer covers [including] [p]olyurethane ...." (See Molitor '751, col. 2, lines 9-12.) Soft polyurethane materials had been known to be a substitute for balata covers for decades prior to the filing of the '130 patent.

For example, Molitor '637 discloses the use of polyurethane material as a soft polymeric material that may be used as an outer cover layer of a golf ball. (See Molitor '637, col. 5, lines 33-41; col. 18, Examples 16 and 17.) One exemplary polyurethane material used by Molitor as an outer cover material includes Estane 58133.

As was readily appreciated by those skilled in the art--including the inventor of the '130 patent--the types of materials used in a golf ball are not as critical to a golf ball's playability as are the mechanical properties of those materials. (See Exhibit G at 334.) The Estane 58133 is a relatively soft material and has a Shore D hardness of 55 and is also a low flexural modulus material having a modulus of about 25,000 psi. (See Exhibit J.) Proudfit's outer cover layer is also relatively soft and has a flexural modulus between 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31.) Due to the similarities between these two materials, the ordinarily skilled artisan would have recognized the substitutability of these two materials as well as the benefits of using polyurethane as an outer cover material.

On page 67, the request concludes:

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the balata-based outer cover layer of Proudfit to include the Estane polyurethane outer cover layer material of Molitor '637 because such was a well known substitute to balata and gives a number of advantages over balata as would have been readily appreciated by those skilled in the art. These advantages include: (1) improved processability; (2) improved durability when compared to balata; (3) cost-effectiveness when compared to balata; and (4) having a good "click" and "feel." (See *supra* [regarding the what "click" and "feel" mean to a golfer]) All of this would have led one of ordinary skill in the art to replace the soft balata outer cover layer of Proudfit with the soft polyurethane outer cover layer of Molitor '637 at the time of the alleged invention.

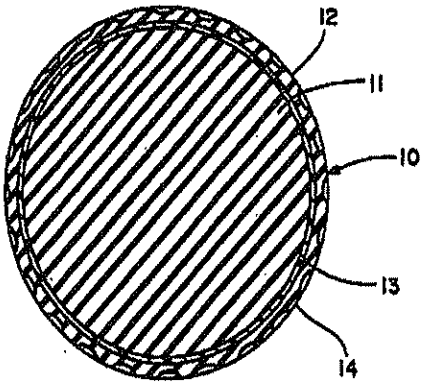
This rejection of claim 7 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #48.

The requester submits on pages 68-69 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 7	Proudfit
A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12)
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer molded over said spherical core to form a spherical intermediate ball,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more**

<table>
<tr><td></td><td>ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)

"The inner layer can be molded in one of two methods:
1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.
2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)</td></tr>
<tr><td>said inner cover layer having a Shore D hardness of at least 60,</td><td>"The composition of the inner cover layer is described in Table 6."
TABLE 6
Composition of Inner Layer of Cover (Parts by Weight)
<table><tr><th>Ionomer Type</th><th>Blend Ratio</th></tr><tr><td>Sodium- Surlyn 8940</td><td>75%</td></tr><tr><td>Zinc- Surlyn 9910</td><td>25%</td></tr></table>
(Proudfit, col. 8, ll. 22-30)

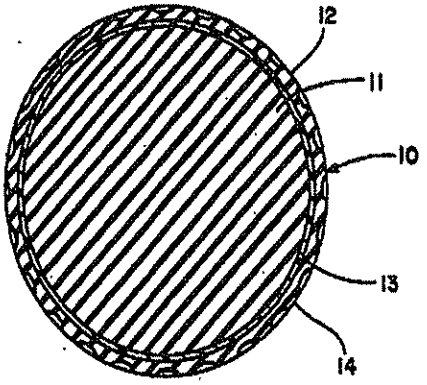
Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.

Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)</td></tr>
<tr><td>said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and</td><td>"The composition of the inner cover layer is described in Table 6."
TABLE 6
Composition of Inner Layer of Cover (Parts by Weight)
<table><tr><th>Ionomer Type</th><th>Blend Ratio</th></tr><tr><td>Sodium- Surlyn 8940</td><td>75%</td></tr><tr><td>Zinc- Surlyn 9910</td><td>25%</td></tr></table>
(Proudfit, col. 8, ll. 22-30)

SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.

Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For</td></tr>
</table>

	instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight."** ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
having a modulus of from about 15,000 to about 70,000 psi; and	"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .) "Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.) The composition of the inner cover layer is described in Table 6. **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 75% Zinc- Surlyn 9910 25% (Proudfit, col. 8, ll. 22-30.)
a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,	**Figure 1 of Proudfit shows dimples formed on the outer surface**

<table>
<tr><td></td><td> 
</td></tr>
<tr><td>said outer cover having a Shore D hardness of 64 or less,</td><td>"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)

"...an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.

An example of this blend is disclose in Table 7 reproduced below.

TABLE 7
Composition of Outer Layer (Parts by Weight)
Trans Polyisoprene (TP-301) 60.00
Polybutadiene 40.00
Zinc Oxide 5.00
Titanium DiOxide 17.00
Ultramarine Blue color .50
Zinc DiAcrylate 35.00
Peroxide (Varox 230 XL) 2.50
Total 160.00

Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td></tr>
<tr><td>said outer layer comprising a</td><td>"... an outer layer of soft material such as balata or a</td></tr>
</table>

polyurethane,	blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below.
said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.	"The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.)

As pointed out in the request on pages 68 and 69:

... Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer of a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the soft balata outer cover layer of Proudfit to include the soft polyurethane material taught by Wu. Wu teaches that: "The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit. It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and 'feel" of balata. (Wu at col. 1, lines 36-46.) As the inventor of the '130 patent had indicated in a 1994 publication, golf ball designers understood that the mechanical properties of the layers impacted the performance of the golf ball more than the materials themselves. (Exhibit G at 334.) Additionally, Wu's polyurethane material inherently has a flexural modulus of about 23,000 psi as measured in accordance with ASTM standards. (Decl. of Jeff Dalton at ¶ 7.) Proudfit's outer cover layer material has a flexural modulus of between about 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31 .) Thus, one of ordinary skill in the art would have appreciated that using Wu's polyurethane as Proudfit's outer cover layer would have provided similar playability characteristics as well as numerous advantages including, for example, durability.

Based on Wu's teachings, one of ordinary skill in the art would have recognized the substitutability of soft polyurethane for soft balata-based materials and the advantages of making such a substitution. These advantages include (1) low price compared to balata; (2) better cut resistance when compared to balata; and (3) a "click" and "feel" that is similar to balata. Moreover, the replacing the balata-material taught by Proudfit would have been obvious to those skilled in the art prior to November 9, 1995 because before that time, the Titleist Professional™ golf ball, which had used Wu's polyurethane material, had replaced balata-covered balls as the market leader. (See Exhibit C; see also Decl. of Jeffery L. Dalton at ¶¶ 3-4.)

On page 69 the request concludes with:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with an outer cover layer made of soft polyurethane material because polyurethane provides numerous advantages over balata while exhibiting the "click" and "feel" of balata.

This rejection of claim 7 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #49.

The requester submits on pages 69-71 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 7	Proudfit
A multi-layer golf ball comprising:	"This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12)

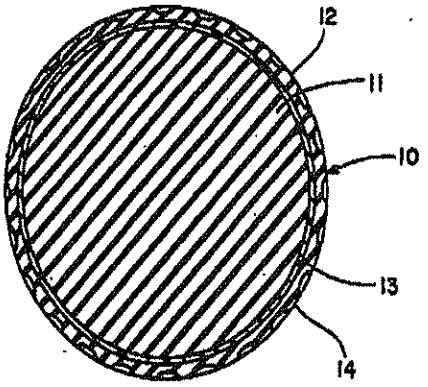
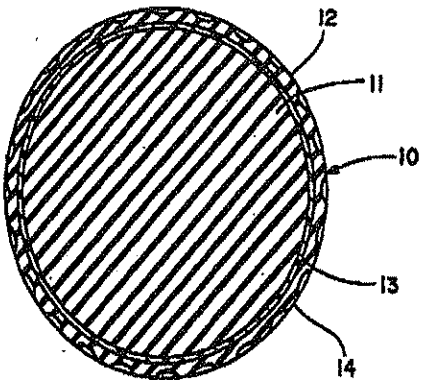
a spherical core;	 "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55)
an inner cover layer molded over said spherical core to form a spherical intermediate ball,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) "The inner layer can be molded in one of two methods: 1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core. 2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)
said inner cover layer having a Shore D hardness of at least 60,	"The composition of the inner cover layer is described in Table 6."

	TABLE 6 Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30) Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64. Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)
said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and	"The composition of the inner cover layer is described in Table 6." TABLE 6 Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 — 75% Zinc- Surlyn 9910 — 25% (Proudfit, col. 8, ll. 22-30) SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.

having a modulus of from about 15,000 to about 70,000 psi; and	"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .) "Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.) The composition of the inner cover layer is described in Table 6. **TABLE 6** Composition of Inner Layer of Cover (Parts by Weight) Ionomer Type / Blend Ratio Sodium- Surlyn 8940 / 75% Zinc- Surlyn 9910 / 25% (Proudfit, col. 8, ll. 22-30.)
a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,	**Figure 1 of Proudfit shows dimples formed on the outer surface** 
said outer cover having a Shore D hardness of 64 or less,	"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.) "...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5,

<table>
<tr><td></td><td>ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.

An example of this blend is disclose in Table 7 reproduced below.

TABLE 7
<table><tr><th colspan="2">Composition of Outer Layer (Parts by Weight)</th></tr><tr><td>Trans Polyisoprene (TP-301)</td><td>60.00</td></tr><tr><td>Polybutadiene</td><td>40.00</td></tr><tr><td>Zinc Oxide</td><td>5.00</td></tr><tr><td>Titanium DiOxide</td><td>17.00</td></tr><tr><td>Ultramarine Blue color</td><td>.50</td></tr><tr><td>Zinc DiAcrylate</td><td>33.00</td></tr><tr><td>Peroxide (Varox 230 XL)</td><td>2.50</td></tr><tr><td>Total</td><td>160.00</td></tr></table>
Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td></tr>
<tr><td>said outer layer comprising a polyurethane,</td><td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below.</td></tr>
<tr><td>said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.</td><td>"The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.)</td></tr>
</table>

As pointed out in the request on pages 69 and 70:

...Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer for a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with the soft polyurethane outer cover layer taught by Molitor '751.

Molitor '751 teaches that: It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the

invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55. (Molitor '751, col. 2, lines 33-49.) In explaining what a "two-piece" golf ball is, the Molitor '751 patent explains that: The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and Other balls having non-wound cores. (Molitor '751, col. 2, lines 7-12.)

Proudfit teaches a "two-piece" golf ball that fits within this definition. Molitor '751 explains that the advantages of using a cover layer including a soft polyurethane material on a two-piece golf ball, such as the golf ball of Proudfit, include "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two- piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

Molitor expresses the hardness of the cover material as a Shore C hardness of less than 85, preferably 70 to 85 and most preferably 72 to 76. (Molitor '751, col. 4, lines 21-25.) Based on Callaway's own measurements, a Shore C hardness of 73 is equal to a Shore D hardness of 47. (See U.S. Patent No. 6,905,648, Table 19 (Exhibit L.) A cover material having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

On page 70 the request concludes:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the soft balata outer cover layer of Proudfit with the soft outer cover layer including a soft polyurethane material as taught by Molitor '751 to provide golf balls that have "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

This rejection of claim 7 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 8

Proposed Third Party Requester Rejection: Ground #50.

The requester submits on pages 71 that claim 8 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.

Proposed Third Party Requester Rejection: Ground #51.

In the alternative, the requester submits on pages 71-72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Proposed Third Party Requester Rejection: Grounds #52.

The requester submits on pages 72 of the request that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Proposed Third Party Requester Rejection: Ground #53.

The requester submits on pages 61-63 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

Claim 8	Nesbitt
The multi-layer golf ball of claim 7	See above.
wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer.	"The disclosure embraces a golf ball and method of making same wherein the golf ball has a solid ... resilient center or core, and a multilayer cover construction, which involves a first layer or ply of molded hard, high flexural modulus resinous material on the core, and a second or cover layer of soft, low flexural modulus resinous material molded over the first layer to form a finished golf ball." (Nesbitt, Abstract.)

These rejections of claim 8 based on Nesbitt in view of Molitor '637; Wu; or Molitor '751 were proposed by the third party requester in the request for reexamination and are being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Grounds #54-56.

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

Claim 8	Proudfit
The multi-layer golf ball of claim 7	See above.
wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer.	"This invention relates to golf balls, and, more particularly, to a golf ball having a two-layer cover. The inner layer is formed from hard resin material such as ionomer resin, and the outer layer is formed from soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 1, ll. 11-16.)

These rejections of claim 8 based on Proudfit in view of Molitor '637; Wu; or Molitor '751 were proposed by the third party requester in the request for reexamination and are being adopted essentially as proposed in the request.

Correspondence

All correspondence relating to this *inter partes* reexamination proceeding should be directed as follows:

By **U.S. Postal Service Mail** to:

Mail Stop *Inter Partes* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By hand to: Customer Service Window
ATTN: Central Reexamination Unit
Randolph Building
401 Dulany St.
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

Michael O'Neill
CRU Examiner
GAU 3993

CONF:

EXHIBIT 36

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 37

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 38

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY, Plaintiff, v. ACUSHNET COMPANY, Defendant.	C. A. No. 06-91 (SLR) **JOINT CLAIM CHART**

JOINT CLAIM CHART

Per the Court's scheduling order, the parties submit the following joint claim chart outlining the terms for which there is a claim construction dispute. At issue are three terms that appear throughout the claims of the asserted patents. For convenience, those three terms, as well as the parties' proposed constructions, appear below. Following that is a table that contains the parties' proposed constructions on a claim by claim basis for all of the asserted claims of each of the patents in suit.

Claim Term or Phrase	Appears in	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
"inner cover layer having a **Shore D hardness**"	'293 Patent, Claims 1, 2, 4, and 5 '130 Patent Claims 1, 2, 4, and 5 '156 Patent Claims 1-11 '873 Patent Claims 1 and 3	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
"outer cover layer having a **Shore D hardness**"	'293 Patent, Claims 1, 2, 4, and 5 '130 Patent Claims 1, 2, 4, and 5 '156 Patent Claims 1-3, 5 and 9 '873 Patent Claims 1 and 3	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
"said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta unsaturated carboxylic acid and having a **modulus** of from about 15,000 to about 70,000 psi;"	'293 Patent, Claim 4 '130 Patent Claim 5 '156 Patent Claims 8, 10, and 11 '873 Patent Claim 3	**The parties agree to the following construction:** "modulus" refers to the flex or flexural modulus of any low-acid ionomeric resin in the inner cover layer as measured in accordance with ASTM D-790. "low-acid" means having "no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid."	
"Core"	All claims	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball

		necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	

Claim Chart for United States Patent No. 6,210,293

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
Claim 1		
1. A golf ball comprising:		
a core;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer having a **Shore D hardness** of 60 or more molded on said core,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer having a thickness of 0.100 to 0.010 inches,		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and		
an outer cover layer having a **Shore D hardness** of 64 or less molded on said inner cover layer,	The Shore D measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said outer cover layer having a thickness of 0.010 to 0.070 inches, and		
said outer cover layer comprising a relatively soft polyurethane material.		
Claim 2		
2. The golf ball according to claim 1,		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
wherein said golf ball has an overall diameter of 1.680 inches or more.		
Claim 4		
4. A multi-layer golf ball comprising:		
a spherical **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer having **Shore D hardness** of about 60 or more molded over said spherical core,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a **modulus** of from about 15,000 to about 70,000 psi; and	**The parties agree to the following construction:** "modulus" refers to the flex or flexural modulus of any low-acid ionomeric resin in the inner cover layer as measured in accordance with ASTM D-790. "low-acid" means having "no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid."	
an outer cover layer having a **Shore D hardness** of about 64 or less disposed about said inner cover layer and	The Shore D measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
		in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
defining a plurality of dimples to form a multi-layer golf ball,		
said outer cover layer comprising polyurethane based material.		
Claim 5		
5. A golf ball according to claim 4,		
wherein said inner cover layer has a thickness of about 0.100 to about 0.010 inches and		
said outer cover layer has a thickness of about 0.010 to about 0.070 inches,		
said golf ball having an overall diameter of 1.680 inches or more.		

Claim Chart for U.S. Patent No. 6,506,130

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
Claim 1		
1. A golf ball comprising:		
a **core**;	Since the term "core" is understood by both those skilled and not skilled in the	The singular component of the golf ball that occupies the geometric center of the sphere

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
	art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	of the golf ball
an inner cover layer having a **Shore D hardness** of 60 or more molded on said core,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;		
and an outer cover layer having a **Shore D hardness** of 64 or less molded on said inner cover layer,	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers.		
Claim 2		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
2. A golf ball according to claim 1,		
wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and		
the outer cover layer has a thickness of about 0.010 to about 0.070 inches,		
the golf ball having the properties required by the U.S.G.A.		
and having an overall diameter of 1.680 inches or more.		
Claim 4		
4. A golf ball according to claim 1		
wherein the outer layer comprises a polyurethane based material.		
Claim 5		
5. A multi-layer golf ball comprising:		
a spherical **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
an inner cover layer having a **Shore D hardness** of about 60 or more molded over said spherical core,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;	**The parties agree to the following construction:** "modulus" refers to the flex or flexural modulus of any low-acid ionomeric resin in the inner cover layer as measured in accordance with ASTM D-790. "low-acid" means having "no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid."	
an outer cover layer having a **Shore D hardness** of about 64 or less	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
molded over said spherical intermediate ball to form a multi-layer golf ball,		
the outer layer comprising polyurethane based material.		

Claim Chart for U.S. Patent No. 6,503,156

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
Claim 1		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
1. A golf ball comprising:		
a **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer disposed on said core,		
said inner cover layer having a **Shore D hardness** of at least 60,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;		
and an outer cover layer disposed on said inner cover layer,		
said outer cover layer having a **Shore D hardness** of about 64 or less,	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
a thickness of from about 0.01 to about 0.07 inches, and		
comprising a polyurethane material.		
Claim 2		
2. The golf ball of claim 1		
wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.		
Claim 3		
3. The golf ball of claim 1		
wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.		
Claim 4		
4. A golf ball comprising:		
a **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer disposed about said core,		
said inner cover layer having a **Shore D hardness** of at least 60,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
		the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;		
and an outer cover layer disposed on said inner cover layer,		
said outer cover layer having a thickness of from about 0.01 to about 0.07 inches,		
and comprising a polyurethane material.		
Claim 5		
5. The golf ball of claim 4		
wherein said outer cover exhibits a **Shore D hardness** of about 64 or less.	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
Claim 6		
6. The golf ball of claim 4		
wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
Claim 7		
7. The golf ball of claim 4		
wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.		
Claim 8		
8. A golf ball comprising:		
a **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer disposed on said core,		
said inner cover layer having a **Shore D hardness** of about 60 or more,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a **modulus** of from about 15,000 to about 70,000 psi;	**The parties agree to the following construction:** "modulus" refers to the flex or flexural modulus of any low-acid ionomeric resin in the inner cover layer as measured in accordance with ASTM D-790. "low-acid" means having "no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid."	

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
and an outer cover layer disposed about said inner cover layer,		
said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and		
comprising a polyurethane material.		
Claim 9		
9. The golf ball of claim 8		
wherein said outer cover exhibits a **Shore D hardness** of about 64 or less.	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
Claim 10		
10. The golf ball of claim 8		
wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.		
Claim 11		
11. The golf ball of claim 8		
wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.		

Claim Chart for U.S. Patent No. 6,595,873

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
Claim 1		
1. A golf ball comprising:		
a **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer disposed on said core, said inner cover layer having a thickness of from about 0.100 to about 0.010 inches,		
said inner cover layer comprising a blend of two or more ionomer resins, at least one of which contains no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;		
and an outer cover layer disposed on said inner cover layer,		
said outer cover layer having a thickness of 0.010 to 0.070 inches, and said outer cover layer comprising a polyurethane material,		

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
wherein said golf ball has an overall diameter of 1.680 inches or more,		
said inner cover layer having a **Shore D hardness** of at least 60, and	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
said outer cover layer having a **Shore D hardness** of less than 64.	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
Claim 3		
3. A multi-layer golf ball comprising:		
a spherical **core**;	Since the term "core" is understood by both those skilled and not skilled in the art, no construction is necessary. However if the Court determines that a construction is needed, Callaway Golf disagrees with Acushnet's construction and offers the following competing construction: "the foundational part of a golf ball, over which one or more cover layers may be applied"	The singular component of the golf ball that occupies the geometric center of the sphere of the golf ball
an inner cover layer having **Shore D hardness** of at least 60 disposed on said spherical core,	The Shore D hardness measurement is performed on the inner cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes

Claim	Callaway Golf's Proposed Construction	Acushnet's Proposed Construction
		referred to as an "off the ball" measurement
said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a **modulus** of from about 15,000 to about 70,000 psi; and	**The parties agree to the following construction:** "modulus" refers to the flex or flexural modulus of any low-acid ionomeric resin in the inner cover layer as measured in accordance with ASTM D-790. "low-acid" means having "no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid."	
an outer cover layer having a **Shore D hardness** of about 64 or less	The Shore D hardness measurement is performed on the outer cover layer on the ball.	This phrase is indefinite, but to the extent it can be construed, it means the hardness of a slab of the cover layer material on the Shore D scale as measured in accordance with ASTM D-2240. This is sometimes referred to as an "off the ball" measurement
disposed about said inner cover layer and		
defining a plurality of dimples to form a multi-layer golf ball,		
said outer cover layer comprising a polyurethane based material and		
said outer cover layer having a thickness of from about 0.010 to about 0.070 inches.		

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EXHIBIT 39

ESTANE®
THERMOPLASTIC POLYURETHANES

ESTANE® 58133 TPU PRODUCT DATA SHEET

DESCRIPTION: 55D Polyester-Type Thermoplastic Polyurethane (TPU) Compound
SPECIAL FEATURES: Fast Cycling, Broad Temperature Performance, Durability, Paintability
TYPICAL PROCESS: Injection Molding
PRE-DRYING: 2 hours at 104°C (220°F) in Dehumidifying Hopper Dryer

Typical Properties	*Test Method*	*Typical Values**	
		SI Units	*English Units*
PHYSICAL			
Shore Hardness	ASTM D-2240	55D	55D
Specific Gravity	ASTM D-792	1.23	1.23
MECHANICAL			
Tensile Strength	ASTM D-412	39.3 MPa	5,700 psi
Tensile Modulus	ASTM D-412		
@ 100% Elongation		13.8 MPa	2,000 psi
@ 300% Elongation		22.8 MPa	3,300 psi
Ultimate Elongation	ASTM D-412	500%	500%
Flexural Modulus @ 23°C	ASTM D-790	172.4 MPa	25,000 psi
Tear Strength	ASTM D-624, Die C	148.8 kN/m	850 lb/in
Taber Abrasion	ASTM D-3389 B		
CS-17 wheel, 1kg load, 1,000 cycles		4.0 mg	4.0 mg
THERMAL			
Glass Transition Temperature	DSC**	-38°C	- 36°F
Vicat Softening Point	ASTM D-1525	140°C	284°F

*These are typical values and should not be used for establishing specifications. Contact your representative for availability and commercialization status.
**Differential Scanning Calorimeter, 10°C/min. temperature program

revised 11/01

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EXHIBIT 40

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 41

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte MICHAEL J. SULLIVAN

Appeal No. 2004-0242
Application No. 09/873,594

ON BRIEF

Before GARRIS, NASE, and CRAWFORD, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 4 to 7, 10 to 13 and 16 to 18, which are all of the claims pending in this application.

We AFFIRM.

BACKGROUND

The appellant's invention relates to golf balls and, more particularly, to improved standard and oversized golf balls comprising multi-layer covers which have a comparatively hard inner layer and a relatively soft outer layer such as that produced by the use of a polyurethane based outer layer. The improved multi-layer golf balls provide for enhanced distance and durability properties over single layer cover golf balls while at the same time offering enhanced "feel" and spin characteristics generally associated with soft balata and balata-like covers of the prior art (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Nesbitt	4,431,193	Feb. 14, 1984
Wu	5,334,673	Aug. 2, 1994

Claims 1, 4 to 7, 10 to 13 and 16 to 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Wu.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer

(Paper No. 15, mailed June 16, 2003) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 14, filed March 21, 2003) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

Claimed Subject Matter

The independent claims on appeal read as follows:

1. A golf ball comprising:
a core;
an inner cover layer disposed on said core and having a Shore D hardness of 60, [sic] or greater [,] a thickness of from about 0.10 to about 0.01 inches, and comprising a low acid ionomer resin containing no more than 16% by weight of an alpha, beta unsaturated carboxylic acid; and
an outer cover layer comprising a polyurethane material.

7. A golf ball comprising:
a core;
an inner cover layer disposed about said core arid having a thickness of from about 0.10 to about 0.01 inches, and comprising an ionomeric resin including no more than 16 % by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; and
an outer cover layer disposed about said inner cover layer comprising a polyurethane material.

13. A golf ball comprising;
a core;
an inner cover layer disposed on said core comprising an ionomer resin; and
an outer cover layer disposed about said inner cover layer comprising a polyurethane material.

Teachings of Nesbitt

Nesbitt's invention relates to a golf ball and more particularly to a cover construction for a golf ball. In the BACKGROUND ART section of the patent (column 1, lines 9-33), Nesbitt teaches:

> Golf balls having a cover material marketed under the trademark "Surlyn" by E. I. du Pont de Nemours and Company of Wilmington, Del., are known in the art and such cover compositions generally comprise a copolymer of an olefin and at least one unsaturated monocarboxylic acid. Conventional two-piece golf balls are comprised of a solid resilient center or core with molded Surlyn covers. The cover used is normally a hard, high flexural modulus Surlyn resin in order to produce a gain in the coefficient of restitution over that of the center or core.
>
> In a conventional two-piece golf ball, a hard, high flexural modulus Surlyn resin is molded over a resilient center or core. The hard, highly flexural modulus Surlyn resin for the cover of a two-piece golf ball is desirable as it develops the greatest hoop stress and consequently the greatest coefficient of restitution.
>
> A two-piece golf ball having a hard, Surlyn resin cover however does not have the "feel" or playing characteristics associated with softer balata covered golf balls. Heretofore balata covered golf balls have been preferred by most golf professionals. If a golf ball has a cover of soft, low flexural modulus Surlyn resin molded directly over a center or core, it is found that little or no gain in coefficient of restitution is obtained.

Nesbitt then teaches in the DISCLOSURE OF THE INVENTION section of the patent (column 1, line 36, to column 2, line 9) that:

> In accordance with the present invention there is provided a golf ball having a multilayer or two-ply cover construction for a solid resilient center or core wherein the multilayer cover construction involves two stage molded cover compositions over a solid center or core of resilient polymeric material wherein an increased coefficient of restitution is attained and wherein the "feel" or playing characteristics are attained similar to those derived from a balata covered golf ball.
>
> The invention embraces a golf ball and method of making same wherein the ball has a solid center or core of resilient polymeric or similar material covered by a first layer or ply of molded hard, highly flexural modulus resinous material or of cellular or foam composition which has a high coefficient of restitution.
>
> The first layer or ply is provided with a second or cover layer of a comparatively soft, low flexural modulus resinous material or of cellular or foam composition molded over the first layer and core or center assembly. Such golf ball has the "feel" and playing characteristics simulating those of a softer balata covered golf ball.
>
> Through the use of the first ply or layer of hard, high flexural modulus resinous material on the core or center, a maximum coefficient of restitution may be attained. The resinous material for the first ply or layer may be one type of Surlyn marketed by E. I. du Pont de Nemours and Company of Wilmington, Del., and the other ply or cover layer may be of a different type of Surlyn resin also marketed by the same company.
>
> The three-piece golf ball of the invention provides a golf ball in which the coefficient of restitution of the golf ball closely approaches or attains that which provides the maximum initial velocity permitted by the United States Golf Association Rules of two hundred fifty feet per second with a maximum tolerance of two percent, which velocity may be readily attained and the playing characteristics or "feel" associated with a balata covered ball secured while maintaining a total weight of the golf ball not exceeding 1.620 ounces without sacrificing any advantages of a golf ball having a standard Surlyn cover of the prior art or a golf ball having a softer balata cover.

In the BEST MODE FOR CARRYING OUT THE INVENTION section of the patent (column 2, line 31, to column 3, line 50), Nesbitt teaches:

> Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core 12 formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere. Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn marketed by E. I. du Pont de Nemours and Company, Wilmington, Del.[1]
>
> This material of the inner layer 14 being a hard, high flexural modulus resin produces a substantial gain of coefficient of restitution over the coefficient of restitution of the core or center. An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material such as type 1855 Surlyn marketed by E. I. du Pont de Nemours and Company [2] is then re-molded onto the inner ply or layer 14, the outer surface of the outer layer or cover 16 being of dimpled configuration providing a finished three-piece golf ball.
>
> According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches and the maximum weight prescribed for a golf ball is 1.620 ounces. It is therefore desirable to produce a golf ball having an improved coefficient of restitution to attain an initial velocity for the golf ball approaching the maximum velocity limit of 255 feet per second, the maximum limit provided by the United States Golf Association Rules.
>
> The hard, high flexural modulus resin is employed to increase the coefficient of restitution in order to attain or approach the maximum initial velocity for the golf ball. The use of a soft low flexural modulus resin provides little or no gain in the coefficient of restitution and may tend to reduce the coefficient of restitution thereby adversely affecting the initial velocity factor.

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[1] As set forth on page 3 of the appellant's specification Type 1605 Surlyn® (now designated Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi.

[2] As set forth on page 4 of the appellant's specification Type 1855 Surlyn® (now designated Surlyn® 9020) is a zinc ion based low acid (10 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 14,000 psi.

In producing the golf ball of the invention, the density of the center or core may be varied and the relative thicknesses of the layers, plies or laminations 14 and 16 may be varied within limits so that the golf ball weight does not exceed 1.620 ounces, the minimum diameter not less than 1.680 inches, and the ball be capable of an initial velocity approaching 255 feet per second. However, the finished golf ball may be of larger diameter providing the total weight of the ball does not exceed 1.620 ounces.

Thus, by varying the density of the center or core 12 and varying the thicknesses of the plies or layers 14 and 16 of the cover construction, a golf ball may be produced having a total weight not exceeding 1.620 ounces and a minimum diameter of 1.680 inches and having a comparatively high coefficient of restitution, the ball closely approaching or attaining in play the maximum permitted initial velocity of 255 feet per second.

In the golf ball of the invention the thickness of the inner layer or ply 14 and the thickness of the outer layer or ply 16 may be varied to secure the advantages herein mentioned. It is found that the inner layer 14 of hard, high flexural modulus resinous material, such as Surlyn resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches. The thickness of the outer layer or cover 16 of soft, low flexural modulus resin, such as Surlyn type 1855, may be in a range of 0.020 inches and 0.100 inches.

For example, a center or core 12 having a 0.770 coefficient of restitution is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605, to form a spherical body of a diameter of about 1.565 inches. This spherical body comprising the core or center 12 and layer 14 of the hard, high modulus Surlyn resin has a coefficient of restitution of 0.800 or more.

This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then re-molded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin such as Surlyn type 1855. The outer layer of the soft resin is of a thickness of 0.0575 inches. The soft Surlyn resin cover would have about the same thickness and shore hardness of a balata covered golf ball and would have the advantageous "feel" and playing characteristics of a balata covered golf ball.

It is to be understood that the golf ball of the invention may be made of a diameter greater than 1.680 inches without exceeding the total weight of 1.620

> ounces by varying the thickness of the inner layer or ply 14 and the outer cover layer or ply 16 and secure desired "feel" and playing characteristics.

Teachings of Wu

Wu's invention relates to golf balls and more particularly to polyurethane covered golf balls made from a polyurethane composition of a polyurethane prepolymer cured with a slow-reacting curing agent selected from the group of slow-reacting polyamine curing agents and difunctional glycols. Wu states (column 1, lines 11-14) that such a golf ball has improved resiliency and shear resistance over golf balls made from conventional polyurethane formulations. Wu teaches (column 1, line 15, to column 2, line 44) that:

> Conventionally, golf balls are made by molding a cover about a core that is either a solid one-piece core or a wound core made by winding thin elastic thread about a center. The center is either a solid mass or a liquid-filled envelope which has been frozen prior to winding the thread therearound. Golf balls made from a solid core are referred to conventionally as two-piece balls while those with wound cores are referred to as three-piece balls. Attempts have been made to make a one-piece golf ball, i.e. a solid homogeneous golf ball; however, to date no commercially acceptable one-piece golf ball has been made.
>
> Balata had been used as the primary material for covers of golf balls until the 1960's when SURLYN®, an ionomeric resin made by E.I. dupont de Nemours & Co., was introduced to the golf industry. SURLYN® costs less than balata and has a better cut resistance than balata. At the present time, SURLYN® is used as the primary source of cover stock for two-piece golf balls. The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound made when the ball is hit by a golf club while "feel" is the overall sensation imparted to the golfer when the ball is hit.

> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.
>
> . . .
>
> It has now been discovered that a polyurethane prepolymer cured with a slow-reacting curing agent selected from the group of slow-reacting polyamine curing agents or difunctional glycols produces a golf ball cover that has good durability and performance. Golf balls made in accordance with the present invention have been found to have improved shear resistance and cut resistance compared to golf balls having covers made from either balata or SURLYN®.
>
> Broadly, the present invention is a golf ball product made from a polyurethane prepolymer cured with a slow-reacting curing agent selected from the group of slow-reacting polyamine curing agents or difunctional glycols. The term "golf ball product" as used in the specification and claims means a cover, a core, a center or a one-piece golf ball. The cover of a golf ball made in accordance with the present invention has been found to have good shear resistance, cut resistance, durability and resiliency. Preferably, the polyurethane composition of the present invention is used to make the cover of a golf ball.

The examiner's rejection

In the rejection of claims 1, 4 to 7, 10 to 13 and 16 to 18 under 35 U.S.C. § 103 (answer, p. 3), the examiner ascertained[3] that Nesbitt discloses all of the claimed subject matter except for the outer cover of the golf ball comprising a polyurethane material. The examiner, in essence, concluded that in view of the teachings of Wu it

[3] After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

would have been obvious to one skilled in the art to have modified Nesbitt's golf ball by using polyurethane as the outer cover material to increase the durability of the golf ball.

The appellant's argument

The appellant argues (brief, pp. 4-7) that the rejection under 35 U.S.C. § 103 is erroneous since the applied prior art, absent the use of impermissible hindsight[4], does not suggest the subject matter of independent claims 1, 7 and 13. In the appellant's view there is no motivation[5] in the applied prior art that would have made it obvious to one of ordinary skill in the art to have modified the golf ball of Nesbitt to arrive at the subject matter of independent claims 1, 7 and 13.

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[4] The use of hindsight knowledge derived from the appellant's own disclosure to support an obviousness rejection under 35 U.S.C. § 103 is impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

[5] Most if not all inventions arise from a combination of old elements. See In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. See id. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See id. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the appellant. See In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Our Determination

In applying the test for obviousness[6] we conclude that the teachings of Wu clearly would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified Nesbitt's golf ball by using polyurethane as the outer cover material to achieve the expected benefits therefrom taught by Wu (i.e., to have the "click" and "feel" of balata; improved shear resistance and cut resistance; durability; and resiliency). Thus, it would have been obvious to one skilled in the art to have modified Nesbitt's three-piece golf ball having a spherical core, an inner layer of type 1605 Surlyn® and an outer layer of type 1855 Surlyn® by replacing the type 1855 Surlyn® in the outer layer with polyurethane as suggested and taught by Wu. Therefore, the teachings of the applied prior art alone (i.e., without the use of impermissible hindsight) are suggestive of the subject matter of independent claims 1, 7 and 13.

In view of our determination above we disagree with the appellant's argument that the rejection under 35 U.S.C. § 103 is erroneous. While the appellant has correctly pointed out the deficiencies of both Nesbitt and Wu on an individual basis, nonobviousness cannot be established by attacking the references individually when

[6] The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

the rejection is predicated upon a combination of prior art disclosures. See In re Merck & Co. Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986). In our view, the combined teachings of Nesbitt and Wu are clearly suggestive of the claimed subject matter as set forth above. Lastly, we incorporate the examiner's response to the appellant's argument (answer, pp. 4-7) as our own.

For the reasons set forth above, the decision of the examiner to reject independent claims 1, 7 and 13, and claims 4 to 6, 10 to 12 and 16 to 18 dependent thereon, under 35 U.S.C. § 103 is affirmed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 4 to 7, 10 to 13 and 16 to 18 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS Administrative Patent Judge	)
JEFFREY V. NASE Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
MURRIEL E. CRAWFORD Administrative Patent Judge	)

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EXHIBIT 42

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 43

THIS EXHIBIT HAS BEEN REDACTED IN ITS ENTIRETY

EXHIBIT 44

Test Title: Veneer vs Competitors
Test Number: 200066
Test Purpose: Test veneer vs other balls played on tour
Requested For:Bill Morgan
Location of Test Balls: Oceanside

Label	Ball Type	IV	Comp	WT	Cover	CoR
12	Pinnacle		85	1.603	66	0.806
A	Tour Ba		80	1.595	46	0.795
B	Professi		92	1.6	53	0.784
C	Tour Pr		88	1.596	50	0.793
D	Callawa		99	1.614	57	0.801
E	Callawa		93	1.606	50	0.791
F	Nike To		86	1.599	49	0.796
G	Precept		89	1.606	50	0.798
H	Strata T		87	1.607	45	0.782
I	Maxfli R		83	1.609	53	0.795
J	Veneer		90	1.612	58	0.81

Pro 175	Traj	Carry	CStdev	Lateral	LStdev	Roll	Total	Area
Pinnacle Gold LS	3.4	282.6	4.2	5.8	7.2	13.8	296.5	368
Balata 100	5.6	268.5	3.7	7.5	7	11.1	279.8	330
Professional 90	4.5	276.5	1.7	6.9	6.9	11.7	288.4	134
Tour Prestige 90	5.5	273.9	3.9	8.3	7.4	9.9	284	355
Callaway Red	4.7	281	5	4.4	9	11.4	292.6	600
Callaway Blue	5.2	275.2	4.8	6.4	4.5	10.7	286.1	281
Nike Tour Accuracy	3.8	272.2	3.7	5.8	4.9	11.9	284.2	249
Precept Tour Premium	3.4	273.4	4	3.5	4.2	11	284.4	216
Strata Tour Professional 90	2.3	271.5	3.5	8.1	6.7	14.7	286.4	304
Maxfli Revolution	4.4	275.6	3.2	4.6	7.7	11.1	286.8	321
Veneer	4.6	280.7	3.7	3.6	6.8	10.5	291.3	320